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A Rifle Platoon In Combat

When the 1st Platoon, Company I, of the 16th Infantry, 1st Infantry Division, prepared to cross the Rhine River near Remagen, Germany on 18 March 1945, it numbered thirty men and one officer. Six days later there were seven men and one officer.

During those six days it ran the gamut from inglorious retreat to victorious assault. When surprised by the enemy it panicked almost before it had been hurt; later, it assaulted dug-in positions and advanced across flat meadows through mortar fire and small-arms fire to attack and destroy a superior German force.

A typical small unit of infantry, it made mistakes and it fought brilliantly; it endured the shock and losses of close combat and finally, it was able to take professional satisfaction from successes bitterly won although hardly noticed beyond its own ranks.

On the morning of 18 March 1945 the 3d Battalion, 16th Infantry, crossed the Rhine on a ponton bridge. The crossing was a part of the 1st Division's effort to enlarge the Remagen Bridgehead, the foothold which eventually became the base from which the First Army broke out to race to Paderborn and seal off the southern edge of the Ruhr Pocket.

The battalion was committed the following day in the northern part of the bridgehead a few thousand yards east of the Rhine, then after the initial action it spent a day as the division reserve. On the evening of the 21st the battalion was moved several thousand yards farther to the east to relieve the 3d Battalion of the 18th Infantry.

The relief began at midnight 21-22 March. By 0135 Company I, 16th Infantry had closed into its new positions

in the small town of Kurscheid, which had been taken late that afternoon by the 18th Infantry. (See Map 1.)

Many buildings in the town were burning; some of the fires had been started by our own artillery and some by German rocket fire.

The Kurscheid Ridge dominated the area northeast for 1000-1400 yards. Its height made it particularly vulnerable to German artillery fire—a condition which the enemy exploited during the next two days.

Shortly after going into position, Company I sent two patrols down both sides of the dirt road which ran out of Kurscheid to the Hanf. One patrol followed the woods line about 300 yards left of the road. These woods apparently contained no enemy for the patrol went all the way to the stream before receiving fire and withdrawing. The patrol on the right side of the road drew heavy small-arms fire from woods to its right while still about 500 yards short of the stream.

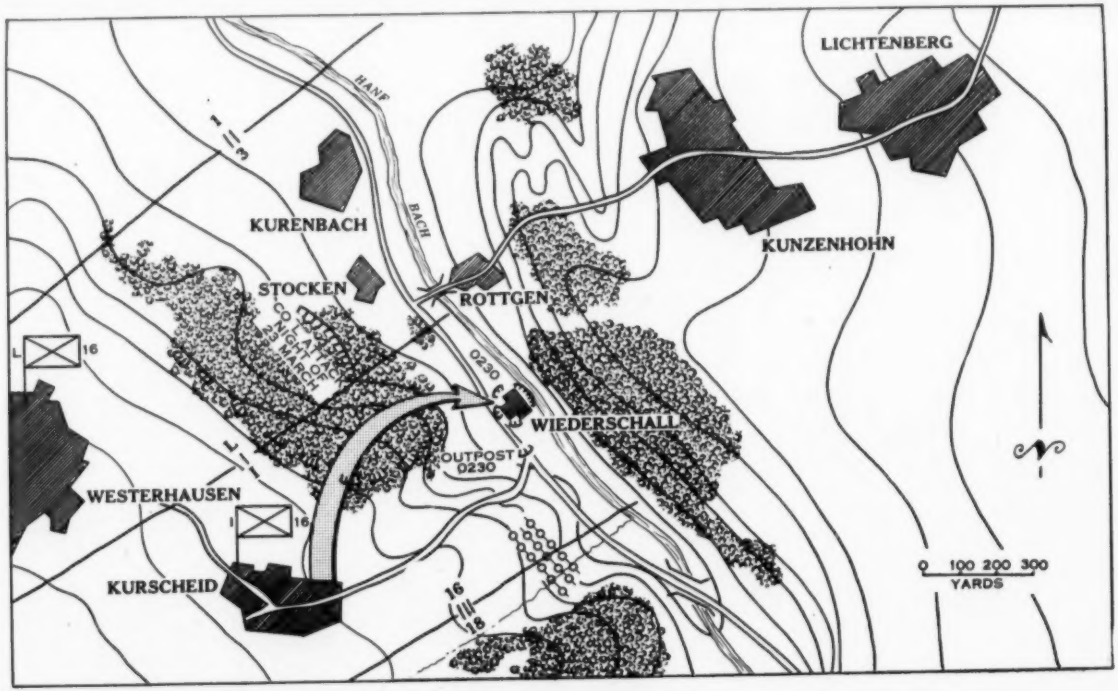
THE PLATOON

The 1st Platoon of Company I occupied a line on the northeast edge of Kurscheid, astride the road, with most of its strength to the left, the side on which the patrol had advanced to the stream without contacting the enemy.

Situated as it was on the forward slope of the Kurscheid Ridge, the platoon received an increasingly heavy volume of rocket fire. Buildings along the edge of town burned all night, the flames silhouetting any men who moved about. Despite this fact there was no hostile small-arms fire, and the only contact with the enemy occurred when a German patrol of three men stumbled into the line of foxholes and quickly surrendered.

All day of the 22d the platoon remained under heavy fire, principally from large caliber rockets, mortars and self-propelled guns. Rest had been impossible for nearly 24 hours.

The platoon strength by this time was down to 26 men and 1 officer. The platoon sergeant, the platoon guide, and one squad leader were experienced men; the other two squad


LICHTENBERG
HANF
BACH
KURENBACH
KUNZENHOHN
STOCKEN
ROTTGEN
COMPANY ROAD MARCH
0230
WIEDERSCHALL
OUTPOST 0230
WESTERHAUSEN
KURSCHEID
16
18
0 100 200 300
YARDS

Map 1

leaders were privates first class with about two months in combat. Of the remainder, a few men had been in combat for as long as a year—others as little as a week. Several had had little infantry training prior to joining the unit.

Despite this the platoon probably was as capable as the average platoon in the veteran divisions at that time. It had its mixture of old-timers (who varied from a few crafty, hardened veterans, to others who had about reached their limit of durability) and its sprinkling of green, fairly willing, partially trained newcomers.

PLANS AND ORDERS

At 1735, 22 March, the 3d Battalion was ordered to attack northeast to clear its sector all the way to the Hanf on a front of about 1,400 yards. Company L was to take Kurenbach and Stocken while Company I would take that portion of the streamline from Wiederschall, north of the road, to the draw south of the road. (See Map 1.) Company L, on the left, was to push off before dark; Company I was to wait for complete darkness.

In his order the acting company commander of Company I, filling in for the temporarily hospitalized company commander, told Company I's platoon leaders that the enemy was thought to be in considerable force northeast of the Hanf, that the woods to the left of the road seemed to be free of Germans, and that the woods to the right were probably defended. This estimate was based on information from the two patrols made the night before.

The 1st Platoon of Company I, on the left, would capture Wiederschall and then send a patrol to contact a similar patrol from Company L midway between Wiederschall and Stocken. The 3d Platoon, on the right, would attack down to the streamline. The 2d Platoon would remain in Kurscheid prepared to move to the support of either of the attacking platoons.

The mortars would remain in Kurscheid in general support. No mention was made of the machine guns because in Company I the section consisted of three squads, and each rifle platoon had one machine-gun squad permanently

attached to it. (A forerunner of the present method of employment.)

The 1st and 3d Platoons were to reconnoiter for vehicle crossing sites on the Hanf and be prepared to resume the attack on order. Ration carrying parties were to be sent to the objectives after reorganization.

The company command post would remain in Kurscheid. To maintain communication, wire-laying parties would accompany both platoons to lay field wire during the attack.

A few minutes after receiving the company order the 1st Platoon leader issued his order to his squad leaders. He planned to follow a narrow trail north from the town to the woods line and then turn right into the woods. The platoon would advance in a column of squads in squad column. (See Map 1.)

As the woods seemed to be free of enemy, and as the moonlight promised considerable visibility, the concealment afforded by these woods could be valuable.

The squads were soon alerted, ammunition checked, and men oriented. At 2200 the platoon moved out. All went well until the woods were reached. Hardly had the first squad entered the tree line when it was met by sharp small-arms fire. Although not entirely unexpected, the firing, which appeared to come from a squad of riflemen and a couple of automatic rifles, achieved such surprise that its effect was momentarily demoralizing.

The platoon dropped to the ground. It returned no fire until compelled to do so by the platoon leader, who moved about through the woods using the most vigorous language at his command. A few men began to fire as he fired his own submachine gun at enemy rifle flashes and continued to shout to his men. After several minutes the leading squad built up a fairly heavy volume of fire and it was possible to move a second squad on line and increase fire to the front.

Once the platoon began to use its weapons it forced the enemy to fall back. After a few minutes enemy firing diminished and the advance continued. Proceeding cautiously for 100 to 200 yards the unit soon came under heavier enemy fire and halted again, but this time, without prompting

from the platoon leader, a few men returned the fire and continued to advance, the remainder of the riflemen following.

This second encounter cost the platoon one of its squad leaders, a private first class who was badly wounded and died a few minutes later.

For the next hour the pattern was repeated several times. The enemy would fire as the platoon slowly advanced through the woods, the platoon would halt, return the fire, and then continuing to fire, move ahead as the enemy fell back to a new set of holes. However, most of the platoon's answering fire never came voluntarily but came only after vehement orders from the platoon leader and the noncommissioned officers.

Visual contact within the platoon was virtually impossible and control was maintained by shouted orders, admonitions, and encouragement. Although some men had been through the bloody combat in the Huertgen Forest, many of the men were unused to night and woods fighting. The inexperience of the new men and the bitter experience of the old gave the platoon little stomach for such action.

These circumstances probably were responsible for the next casualty, another squad leader. This man, a highly aggressive sergeant, had been with the company when it had assaulted Omaha Beach on D-day. Never having been wounded, he had not missed a day of combat with the company.

Now, more than 270 combat days after his first engagement, he suddenly reached his limit. Just before they emerged from the far side of the woods the Germans made a last and more determined stand in a set of holes near the woods line. They continued to fire until the platoon was within 30 yards, then about a dozen broke and fled towards the Hanf while seven or eight remained to fight. About half of these continued to fire until they were killed in their holes; the remaining four surrendered.

The sergeant started the assault. Whether he actually engaged in it is uncertain, but once this last set of holes was cleared, the woods were silent except for his sobbing.

Clutching his rifle he sat at the foot of a tree completely hysterical. He refused to release the rifle, apparently heard no commands, was unaffected by solicitude, and was incapable of further action.

Fearing that the sergeant's collapse would demoralize other men, the platoon leader ordered two men to return him to Kurscheid. Half carrying him they departed for the rear. (After a sedative at the battalion aid station and a few day's rest at the kitchen area he returned to the company but never again was an effective fighting man.)

Deployed in a skirmish line the platoon was soon ready to move across the 400 yards of open field that separated it from the first buildings of Wiederschall. The wire-laying team, which had fallen behind, caught up at this point and the platoon leader telephoned his situation to the company commander.

The line moved forward at a slow walk—100, then 200 yards. Halfway to the objective the enemy suddenly opened fire with rifles, machine pistols, a machine gun, and rocket launchers. Most of this fire was low, striking the slope to the front of the advancing men.

Taking what cover the slightly rolling hillside afforded, the Americans fired back, but the enemy continued to lay down a heavy, if somewhat inaccurate, volume of fire. To have advanced in the face of it would have resulted in heavy casualties, so the platoon leader ordered his men to withdraw by squads back to the cover of the woods line.

He telephoned the company command post requesting 60-mm mortar fire. In a few minutes the mortar section adjusted with three rounds and followed with "section ten rounds." They continued this fire intermittently for an hour—between salvos of enemy rockets which were hitting their position in Kurscheid.

Meanwhile, the 3d Platoon had been having its difficulties on the right side of the road. It had gone ahead without incident until about 300 yards from the Hanf, when it ran into a dense mine field covered by small-arms fire. Several men became casualties and the company commander ordered

the platoon to withdraw to Kurscheid. The company commander sent the 2d Platoon forward to assist the 1st, and it joined the 1st Platoon just as the mortars had finished softening up Wiederschall.

Assuming command of the two platoons, the leader of the 1st Platoon deployed them into a single long skirmish line and ordered them to withhold their fire until fired upon. At 0200 the two units moved silently forward. Their approach was unopposed until they had entered the first farmyards, when four enemy riflemen fired a few rounds and then surrendered. The majority of the defenders had withdrawn, leaving behind two badly wounded soldiers and the small delaying force. (See Map 2.)

The total prisoners for the night numbered ten. In addition five enemy dead had been counted in the woods, and in all probability the enemy had evacuated several wounded. The total strength of the Germans opposed in this night action probably was as great or greater than the platoon strength.

Once the village had been cleared, an outpost from the 2d Platoon was sent south to the road junction.

A telephone call to the company elicited the information that Company L was on its objectives in Kurenbach and Stocken. The 1st Platoon leader ordered one of his private-first-class squad leaders to take his squad and make the scheduled contact patrol to meet the Company L patrol from Stocken.

As the patrol left the platoon leader ordered his men to dig a perimeter around Wiederschall and to cover the foxholes with lumber which lay around the buildings.

A few minutes later the patrol returned, reporting that a German tank was on the road a couple of hundred yards from the platoon position. Leaving the force under command of the 2d Platoon leader, the 1st Platoon leader took two men and set out to verify this report and make the patrol.

The tank turned out to be a culvert which in silhouette looked like a tank hull. A tree had been felled by artillery

fire and one of its bare branches projecting across the culvert looked like the tank's gun.

With this report cleared up, the patrol went all the way to Stocken encountering no one from Company L. In Stocken the group was challenged in German. It hastily withdrew, followed by a scattering of rifle fire, and returned to Wiederschall. There a very angry platoon leader called his company commander who, upon checking with battalion, found that the previous report of the capture of Stocken was slightly in error. Company L was still several hundred yards from the western edge of the town. The 1st Platoon's patrol had been in the eastern part of town in rear of the defending German force.

When daylight came German soldiers were observed in the woods between Wiederschall and Stocken. It was apparent then that the patrol had been made along a thousand yards of road parallel to and in rear of the German lines.

Before daylight a carrying party arrived from Kurscheid with cases of "C" rations. It had encountered a small group of Germans in the woods along the route previously taken by the 1st Platoon, and, after a short fire fight, it had captured one German and dispersed the rest. When the carrying party attempted to return to Kurscheid it was fired on from the woods and compelled to return to Wiederschall; the Germans had plugged up the hole made in their lines by the night attack, and the two platoons were virtually cut off.

Shortly before daylight the small outpost at the road junction southeast of Wiederschall was pulled back into the village and all personnel of the two platoons ordered under cover, either in buildings or covered foxholes.

The 1st Platoon leader telephoned for and received the promise of all the artillery, cannon, and mortar support necessary for the isolated force. He spent the morning registering Cannon Company of the 16th Infantry, the 7th Field Artillery Battalion, and Company M's mortars on all sides of Wiederschall, recording concentration numbers on his map as they were received from the firing units. In midmorning several concentrations were fired on enemy

along the ridge north of Wiederschall, and for the remainder of the day there was no more movement forward of the crest.

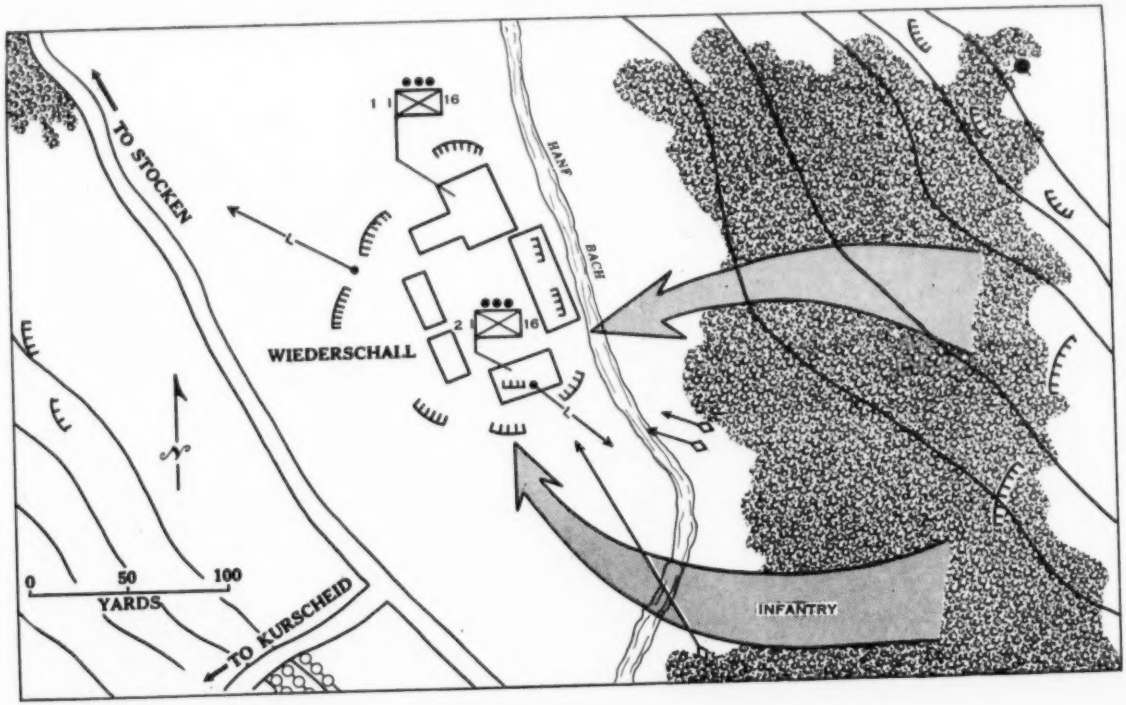
Early in the afternoon a single German mortar began to drop rounds on the house occupied by the 1st Platoon CP. (See Map 2.) The enemy weapon was located just beyond the Hanf, at a range of no more than 400 yards. The platoon leader, from an OP in the attic of the house, attempted to destroy the mortar with 81-mm mortar fire, but before the 81's could adjust the German mortar would fire five fast rounds at the OP, forcing the lieutenant to scramble down the ladder to the second floor, and down the stairs to the first floor. Before the 81's could deliver effective fire on it the German crew apparently made it SOP to adjust, fire five rounds quickly, and then hurry to a new position a few hundred yards to the right or left. This game continued throughout the afternoon with neither side able to do much about the destruction of the other.

If further proof was necessary that the enemy was fully aware of the presence of unfriendly troops in their midst, it came during the afternoon. A German soldier attempting to surrender crossed the creek to come into Wiederschall. Just before he reached the shelter of its buildings he was shot through the arm by his own troops.

All day long German rocket and artillery fire passed overhead on its way to the Kurscheid Ridge, but the ridge to the northeast of the isolated platoons prevented any but the highest angle fire from falling on the position. In addition, enemy self-propelled weapons could not move through the woods on the far side of the ridge to approach the crest and pour direct fire into Wiederschall.

As darkness approached, however, the situation became more serious. To the south of the 2d Platoon the stream curved away from the enemy ridge, so that enemy tanks across the stream could approach to within 150 yards of Wiederschall's south flank. Just at dark, enemy tracked vehicles were heard in that area. (See Map 2.)

At the same time the 2d Platoon reported infantry had crossed the Hanf and were approaching from the southeast;


TO STOCKEN
WIEDERSCHALL
HANF
BACH
INFANTRY
0
50
100
YARDS
TO KURSCHEID

Map 2

and the 1st Platoon saw Germans coming down the slope towards the stream. Soon close-range enemy rifle and machine-gun fire tore through the buildings.

The 1st Platoon leader, attempting to call the company for fire support, found the wire out and the SCR-300 radio ineffective. The situation was definitely unpromising until a radio operator in Company L called to say that he could hear the 1st Platoon and would relay messages. Told to call battalion and ask for artillery, cannon, and mortar fire by concentration number, the Company L operator garbled the concentration numbers. Battalion could be heard asking for more accurate designations.

During this time the enemy continued to approach. All men on the north and east sides of the two-platoon perimeter were firing rapidly. In lulls, the armored vehicle could be heard, still moving about, apparently unable to get into a firing position.

The Company L radio operator called the 1st Platoon again for the concentration numbers, received them, and again transmitted them incorrectly. However, the artillery liaison officer at battalion made enough sense from the message to fire one concentration directly across the stream from the 1st Platoon. This helped in that sector but did nothing to relieve the pressure on the 2d Platoon. At this time battalion reported that it could hear the 1st Platoon and further fire requests were transmitted direct to battalion.

Cannon and mortar fire were directed on the Germans approaching the 2d Platoon from the southeast (see Map 2) but so much time had been lost that the enemy was among the foxholes and between the buildings. Drastic action was necessary. The 1st Platoon leader gave the coordinates of Wiederschall and requested 81-mm mortar fire on the tiny village itself. A concentration fell on the town about two minutes later. It was repeated and enemy firing diminished. Then, as quickly as the attack had started, it was over. The enemy withdrew leaving behind several wounded and dead.

Despite receiving its own mortar fire, the platoon had only one casualty, a private first class who had replaced one

of the squad leaders lost by the 1st Platoon the previous night. He broke his ankle diving for his hole when the enemy first opened fire in the attack. This was the third squad leader lost by the platoon in 24 hours.

It was quiet in Wiederschall for the next several hours. At midnight the company commander ordered the two platoon leaders to return to Kurscheid for a new attack order. Leaving instructions to prepare the platoons for further attack, the two officers made their way back to Kurscheid, where they learned that the twin towns of Kunzenhohn and Lichtenberg, 1400 yards northeast of Wiederschall (see Map 1) were the battalion's new objective.

Company L was to take the bridge across the stream at Rottgen, opposite Stocken. Company I was to proceed to Stocken, cross the bridge into Rottgen and pass through that town after it had been cleared by Company L. The company was then to follow the road from Rottgen to Kunzenhohn.

The platoon leaders rejoined their units and at 0230, 24 March, the remainder of Company I joined the platoons in Wiederschall. Since the 1st Platoon leader had patrolled to Stocken the previous night, his platoon was designated to lead the column of platoons in the new attack.

Company I moved to Rottgen without incident, entering that town just as Company L completed mopping up. Little resistance had been encountered and there was no evidence of enemy armor. Without halting, Company I continued towards Kunzenhohn in a column of files on both sides of the road.

Eight hundred yards beyond Rottgen the column halted when the 1st Platoon's scouts dropped back to report that, from woods to their front, they could hear sounds as of men digging in and chopping through tree roots.

Sending one scout to the rear of the company column to report this information to the company commander, the 1st Platoon leader, walking in the field to the right of the road, went forward to investigate. The sounds, becoming clearer as he advanced, definitely were those made by men digging in.

When a hundred or more yards in front of his platoon, he heard men approaching from the direction of the enemy. Kneeling in the road-side ditch he saw one German soldier coming down the middle of the road, ten yards behind him a second, and still farther back a third, while two or three more could be heard approaching. Although walking in the middle of the road, the Germans were proceeding slowly and cautiously—evidently a patrol from the force in the woods. (See Map 3.)

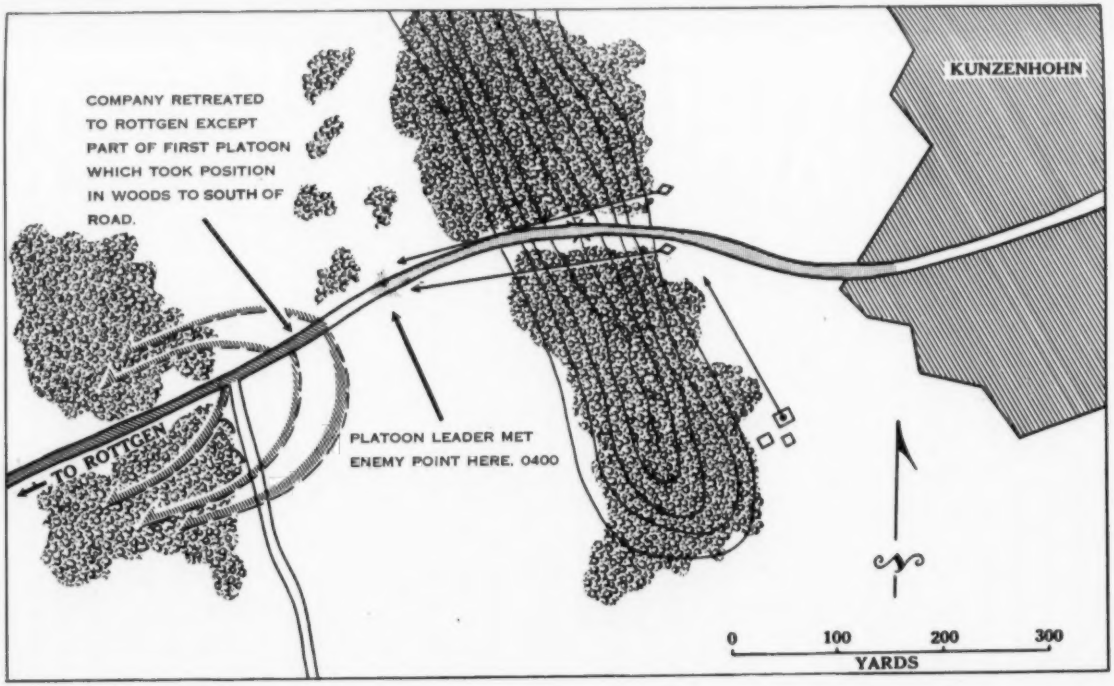
Kneeling in the ditch, the lieutenant permitted the first two men to pass him. The third man, when about ten feet away, saw him and approached, addressing him in German in friendly tones. Before the American could answer, the German realized he faced an enemy and jerked his automatic rifle up, firing a burst at the same instant the American officer fire his Thompson submachine gun.

Two rounds from the German weapon went through the lieutenant's jacket. The entire burst from the Thompson blasted into the German's belly. Screaming horribly, he stumbled forward, fell, and died on top of the lieutenant.

His screaming touched off a panic which swept Company I, causing a disorganized withdrawal of nearly all its men, and resulting in heavy casualties. Two German tanks, stationed across the road from each other, swept the road and ditches with machine-gun fire. Subjected to this fire and jumping to the conclusion that their platoon leader had been killed, the platoon disintegrated.

When the platoon leader crawled from under the dead German and made his way back to where he had left his men, he found less than half of them remaining. Most of these were frozen in the ditches; several, including the squad leader at the head of the left file, had been hit.

The enemy tanks continued to fire down the road and searched up and down the ditches. The lieutenant ordered the first men he reached in the right hand ditch to get into the field away from this enfilade fire. Few men moved. It was necessary, literally, to kick men to compel their movement; this despite the fact that their only chance for safety lay in leaving the ditches. Men on the left side of


COMPANY RETREATED
TO ROTTGEN EXCEPT
PART OF FIRST PLATOON
WHICH TOOK POSITION
IN WOODS TO SOUTH OF
ROAD.
KUNZENHOHN
TO ROTTGEN
PLATOON LEADER MET
ENEMY POINT HERE. 0400
0
100
200
300
YARDS

Map 3

the road reacted the same way and even after they had left the ditch one or two of them crawled back into it.

Once the men had crawled into the fields, the officer went to where the rear of the platoon should have been, looking for the remainder of the company. It was gone. Realizing that less than half his men were available, he ordered his platoon to return to the woods line recently passed.

Following his men in the dark, the officer stumbled across the machine-gun squad's weapon, which had been abandoned by its crew. He took it back to the woods with him, where he found the squad and 8 to 10 men from the platoon. These remnants were built up into a short firing line along the forward edge of the woods. (See Map 3.) By this time, about 0500, dawn was breaking, a German attack seemed likely, and the unit was out of communication with the company because the SCR-300 radio operator was among those missing.

At this point the platoon sergeant came up through the woods from the rear and reported a scattering of Company I men in the woods.

Ordering the sergeant to remain with the men at the forward edge of the woods, the platoon leader scouted about for reinforcements. Half an hour's search uncovered most of the remaining men of the platoon and half a dozen men from the 2d and 3d Platoons. One of these was a radio operator who had retained his SCR-300.

The lieutenant attempted unsuccessfully to contact the company by radio. He then called battalion, reporting the situation. The battalion ordered, "Company I will advance at all costs." Company I, so far as the platoon leader knew, consisted of the 20 to 24 men under his command.

In the meantime a German patrol had come down the road, apparently probing to determine how far the Americans had retreated. The men at the crossroads waited until the patrol was within a few yards, then opened fire, killing one German and wounding two. One other surrendered. When their patrol did not return the enemy fired their tank fire and mortar fire into the woods. Another squad leader—the fifth squad leader to become a casualty—was

killed. Frequent tree bursts wounded several men, including the Company M mortar observer who had just come forward to adjust fire on the German positions. The platoon's medical aid man was knocked unconscious by a falling branch, but recovered consciousness after five minutes and immediately began attending to the wounded.

The platoon leader radioed for artillery fire on the tanks. Before it was adjusted, the tanks, which had been firing high explosive shells into the woods, suddenly increased their range. To the rear, through a break in the trees, at a distance of nearly a mile, the 3d Battalion's attached tanks could be seen moving along the road. Each tank was subjected to German fire for about 200 yards, until a rise in the intervening ridge again protected it. In a few minutes they had crossed the Hanf at Rottgen and approached the woods occupied by the 1st Platoon. With them were the company commander and many of the men missing from the 2d and 3d platoons.

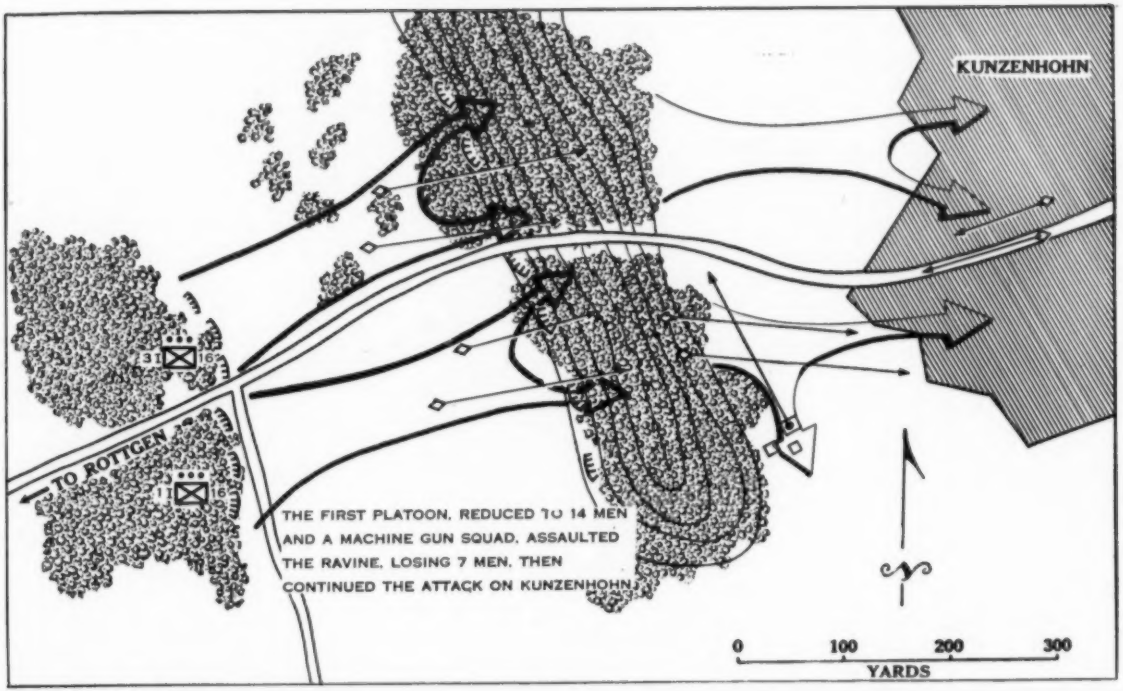
The company prepared to resume the attack. The 1st Platoon was ordered to advance across 400 yards of open field on the south side of the road and capture the wooded ravine in which the Germans were located. (See Map 4.)

The 3d Platoon, followed by the 2d Platoon, was to attack over the rougher and somewhat wooded ground on the north of the road.

Two tanks were to accompany the 1st Platoon. The remaining tanks, which could not cross the rough terrain north of the road, were to remain at the edge of the woods supporting by fire the advance of the 3d and 2d Platoons.

By this time the German tanks had moved back beyond a bend in the road, but whether they had halted there or retreated farther was not known. Sporadic small-arms fire came from the wooded ravine occupied by the Germans.

On visual signal from the company commander, the attacking platoons moved forward. On the north, the 3d Platoon met considerable resistance. On the south, the 1st Platoon, now reduced to 14 men and the 4 man machine-gun squad, was also met by very heavy small-arms, machine gun, and mortar fire.


KUNZENHOHN
TO ROTTGEN
THE FIRST PLATOON, REDUCED TO 14 MEN
AND A MACHINE GUN SQUAD, ASSAULTED
THE RAVINE, LOSING 7 MEN, THEN
CONTINUED THE ATTACK ON KUNZENHOHN
0
100
200
300
YARDS

Map 4

The platoon leader, assisted by the platoon sergeant and guide, permitted no one to halt but demanded continuous forward movement using all the fire that could be produced by the men and the tanks. The first 300 yards were costly, six men falling under the German fire. One of these was the sixth squad leader lost in four days.

Some men faltered and the flanks lagged from time to time, but urged on by their leaders the thin line continued to fire and advance. A hundred yards short of the ravine the German fire slackened noticeably and the platoon speeded up to a run. Few, if any, who had started the attack had expected to finish it. Now that the objective was near and the enemy faltering, confidence reappeared and the platoon swept into the woods.

A few of the Germans, occupying holes cut out of the side of the ravine, continued to fire until they were killed. Others surrendered in the face of the ferocious assault. Within ten minutes the woods and ravine were cleaned out. Ten Germans were killed and twenty-two captured in this assault by a numerically inferior force.

The reason for the original stubborn resistance appeared when one of the dead and one of the prisoners were found to be SS men. They had constituted a nucleus which by example and by fear had developed a determined defense.

Now that this intermediate objective had been seized, there remained the town of Kunzenhohn itself. If it turned out to be as strongly held as the ravine and woods, there seemed little likelihood of its capture. However, the company commander, who with the 3d Platoon reached the woods on the north of the road, decided to continue the advance in the same formation. Morale was high as a result of the successful assault, and the depleted 1st Platoon without hesitation prepared to move out.

Plans struck a snag when the tank section sergeant objected to crossing the open ground into the town along with the infantry. Despite having successfully crossed open fields to get into the woods he then occupied, he maintained that he would undoubtedly lose his vehicles were he again to make such an advance.

Since it was true that the location of the enemy tanks was unknown, the 1st Platoon leader sent the tanks to positions from which they could fire into the town during the first hundred yards of the assault. They quickly assumed these positions and the platoon emerged from the woods, every man firing into the town, while the tanks supported the attack with their machine guns for the one or two minutes before their fires were masked.

When within 150 yards of Kunzenhohn, the platoon sergeant pointed out a group of farm buildings 200 yards south of the platoon and perhaps 200 yards southwest of the town. He was ordered to take three men (which with himself constituted half the platoon strength) and check the buildings. The remaining four men, the platoon leader and the machine-gun squad continued into the town. There was no resistance until after the first building was reached and occupied. Then enemy rifle fire came from other buildings. Fire was exchanged for a few minutes until ammunition was almost completely exhausted—a hasty check showed only 14 rounds of various types in the entire group. By this time the tanks had arrived from the woods, but hope of obtaining .30 caliber ammunition from them vanished when they reported they had fired every machine gun round.

The shortage was reported to the company commander, who arranged a redistribution from the other platoons. Even so, there was very little ammunition in the entire company.

Half an hour later ammunition arrived, and Company K, which had been committed on Company I's left, entered the town.

The platoon sergeant of the 1st Platoon, leaving the farm buildings which he had checked, rejoined the platoon in Kunzenhohn, bringing with him three prisoners, the crew of an antitank gun emplaced in one of the barns. The gun had been sited to fire across the front of the woods, and had the American tanks accompanied the infantry on the final assault, they would have presented their flanks as easy targets.

This ended the day's fighting for Company I and the 1st Platoon. The company reverted to battalion reserve as Companies K and L pressed the attack through Lichtenberg and on towards the regimental objective, Bierth.

In eighty hours, from 21 March to 24 March 1945, the platoon had lost in killed and wounded 19 of its 26 men. Of these, six were squad leaders, some of whom served only a few hours before becoming casualties. Despite these losses the platoon had taken every one of its objectives.

Company I did not attack again until late that night.

ANALYSIS AND CRITICISM

A review of this action showns no sustained, gallant, unfaltering sweep to all objectives. Rather, it develops a picture of a small unit not too sure of itself—one that hesitated at times, panicked ingloriously on one occasion, but eventually accomplished its mission despite heavy losses.

Its successes and its failures were almost too dependent on the degree of leadership exhibited. When the platoon was aware of the presence of leaders doing their jobs, it performed satisfactorily, even heroically. When it felt itself leaderless, it became an impotent scattering of frightened individuals.

This leadership had to be a tangible thing. When his men could *see* the platoon leader in front of the skirmish line assaulting the ravine before Kunzenhohn, they advanced through fire that might have stopped a much larger organization. When they could *hear* him shouting orders and encouragement and firing his own weapon in the night attack on Wiederschall, they put aside their fear of night fighting in woods and pushed ahead with him.

On the other hand, when the platoon was surprised by the encounter in the darkness on the road to Kunzenhohn, it fell apart when it appeared that its leader was lost.

Considering that incident, it would seem that the platoon leader was guilty of an error in judgment in going forward to do his own scouting. At a time when his unit most needed a strong hand, he was a couple of hundred yards forward of it—a distance which in the darkness might just as well have been a couple of miles.

The ensuing panic was understandable. The men were tired to the bone by continuous action for 72 hours, and control within the squads was weak, if not entirely nonexistent, due to the fact that four squad leaders had been lost up to that time and the new squad leaders had themselves been riflemen only a few hours before. Whatever leadership they may have exerted to retain control had little chance of success once the cry had gone up that the platoon leader had been killed.

In the previous three days the lieutenant's men had come to place almost complete dependence on him—a dangerous condition. In becoming the strongest link in the chain of platoon capabilities he became at the same time its weakest link, since in the event of his loss, the platoon's collapse was likely to follow. While his initiative and aggressiveness were commendable, he cannot be held blameless. Even though losses in squad leaders were excessive there remained to him the services of the platoon sergeant and guide, both experienced men of unquestioned courage. When he performed such actions as personally leading the patrol to Stocken, and personally scouting the enemy before Kunzenhohn, he encouraged a relaxation of their sense of responsibility. Their attitude may well have been, "If he wants to do the whole job himself, let him do it." Consequently, they were unprepared to take over in the emergency which confronted them in the darkness on the road to Kunzenhohn. This was a major flaw in an otherwise exemplary performance.

Although expert opinion may condemn a decision to attack through an unreconnoitered woods at night, the attack on Wiederschall illustrated that, given aggressive leadership, small units can achieve success in such an action even though the attack lacks surprise.

In the defense of Wiederschall the covered foxholes paid off handsomely when it became necessary to call friendly mortar fire on the village to eject the attackers. The registration of mortar, cannon, and artillery fire during the day saved vital time when those fires were needed during the counterattack.

If further proof is needed of the potency of the infantry-tank team in the assault, the seizure of the ravine before Kunzenhohn should suffice. Here, a very small infantry force, accompanied by two tanks, overcame the resistance of a much larger German force.

Despite its mistakes, despite heavy losses, and despite numerical inferiority, the 1st Platoon of Company I took all its objectives and killed or captured Germans in excess of its own total strength. Initial mistakes were corrected and final objectives were taken by fire and maneuver—the best if not the only way of accomplishing infantry's mission—to close with and destroy the enemy.

LESSONS

1. Infantry units to which tanks have been attached benefit greatly from heightened morale as well as from the armored firepower.

2. Covered foxholes afford much more protection than open holes; the friendly mortar fire on the 1st Platoon drove off the enemy but did not cause a single casualty to the men in the covered holes.

3. No unit, no matter how small, can operate at top efficiency for long periods without replacements for the leaders of its squads.

4. A platoon leader may sometimes feel compelled to do his own patrolling, but when he does so he cannot at the same time lead his platoon.

5. In small unit leadership, the cool, calm, and collected exterior does not always suffice; at times (and this is especially true in night fighting) it takes vehemence and a loud voice to control men.

6. Leadership by example usually will overcome the normal fear experienced by soldiers in battle, but if this fear progresses to the panic stage, neither example nor reason will suffice. Drastic, physical compulsion is sometimes necessary.

7. Assault fire is invaluable. The average soldier has no idea how much he can help himself by maintaining a heavy volume of fire, even though he can see no specific target; consequently, it is only with extreme difficulty that most men can be compelled to shoot and keep shooting.

8. There is a requirement for numerical strength in the assault echelon; however, a unit can accomplish more if every man is compelled to fire and advance.

9. Ordinarily only a few men do the outstanding fighting in any particular action, and it is usually the same men who acquit themselves well in each engagement.

The Infantry-Tank Team In Attack

The combination of infantry and tanks to form an infantry-tank team creates a well-balanced fighting unit strong in firepower and capable of rapidly closing with the enemy. The characteristics of one element are complementary to the characteristics of the other. The vulnerability of infantry to small-arms fire is offset by the tank's armor-protected firepower. The vulnerability of tanks to enemy individual antitank weapons and obstacles is offset by the capability of the infantry to destroy these weapons and breach the obstacles. Tanks can make paths for the infantry through antipersonnel mine fields and barbed wire. (See Figure 1.) Tanks have a great amount of firepower, which is used to assist the team, and the infantry protects the tanks from individual antitank measures. These complementary characteristics, aided by a good communication system, make a powerful team.

An infantry-tank team can be formed by any combination of tanks and infantry. In an infantry division the team is usually stronger in infantry; however, the division commander has sufficient tanks at his disposal to form a team strong in tanks when the situation warrants. Each infantry regiment has a company of 22 tanks and the division has an organic tank battalion of 71 tanks, giving an infantry division a tank strength equivalent to approximately two tank battalions.

The smallest effective infantry-tank team, and incidentally, one which is frequently used, consists of one platoon or company of infantry and one platoon of tanks. This type of team is usually formed by combining elements of the organic regimental tank company with rifle units. The division tank battalion is most profitably employed as a unit, probably in conjunction with an infantry battalion

or regiment; however, one or more companies may be attached to a regiment.

The principles of forming and employing infantry-tank teams as discussed in the following pages apply to teams of any size. The allocation of the regimental tank company platoons is made by the regimental commander based on the tank company commander's recommendations. Before

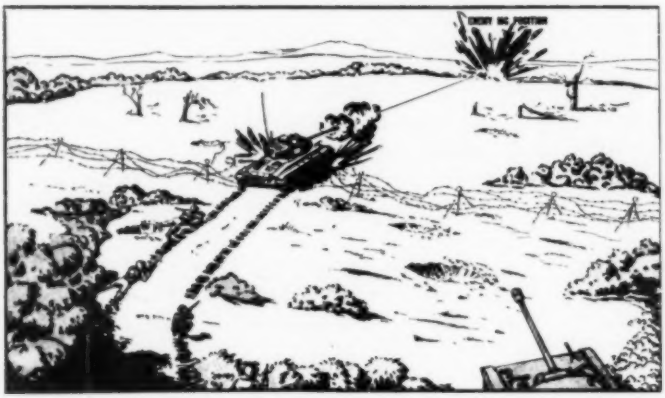


Figure 1. Clearing path through wire and antipersonnel mine field.

the regimental attack order is issued, the tank company commander makes an estimate of the situation based on his knowledge of the regimental mission, the friendly forces, the enemy, and the terrain in the regimental zone. Usually he already knows part of this information; part is included in the instructions received from the regimental commander, and part he gets by reconnaissance.

The result of the company commander's estimate of the situation is presented to the regimental commander as recommendations which include:

Areas in which tanks can be used to best advantage.
Number of platoons to be used in each area.
Routes of approach.
Infantry-tank formations.

Tentative plan of maneuver.

Areas and manner in which to employ reserve tanks in antitank roles.

Plans for the reinforcement or relief of any or all of his leading platoons.

Manner in which all platoons are to be supplied.

Based on the tank company commander's recommendations and the regimental mission, the regimental commander forms infantry-tank teams. The actual composition of the team usually is determined by the battalion commander to which the tanks are attached.

The team commander is the commander of the unit, either infantry or tank, to which the other unit is attached. Because of the preponderence of infantry within the infantry regiment, and because of the type of missions usually assigned to an infantry unit, the team commander in most cases is the infantry unit commander. In situations where the tank company is used as a unit and the mission is particularly suited to armored action, company or smaller sized infantry units are attached to the tank company.

COORDINATION

Coordination begins as soon as the infantry-tank team is formed and continues throughout all phases of its operation. It is the responsibility of both the tank and infantry unit commanders to insure that coordination between their respective units is as complete as time permits and that the details of coordination are understood by all concerned. Coordination between tank and infantry units is promoted by training them together. Commanders of the infantry and tank units thoroughly discuss the coordination measures so that each knows what the other is going to do, and how and when he will do it. Coordination measures include:

Arrangement for liaison and communication between infantry and tank commanders.

Support by tank weapons.

Support by infantry weapons.

Arrangement for passage of tanks through infantry.

Arrangement for passage of infantry through tanks.

Arrangement to guide tanks through mine fields, across obstacles, over difficult terrain, and to firing positions.

Action for each unit during reorganization and consolidation of objective.

Tentative plan for continuation of the attack.

Resupply plan for tanks.

Coordination alone is not sufficient. In addition, measures are taken to insure teamwork. Individual infantrymen and tank crew members are carefully taught what is expected of each unit and how and when each detail of the operation is to be accomplished. They learn the methods by which targets are to be designated (see Figure 2), the means of communication to be used between tanks and in-

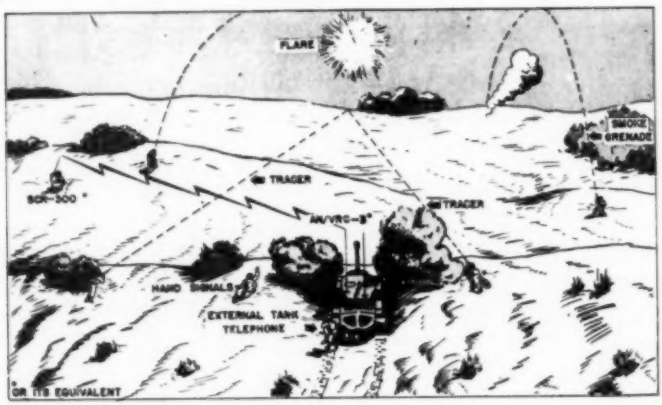


Figure 2. Methods of target designation.

fantry, the methods of mutual support, and the plan of fire and maneuver. Individual squads are trained to operate with tanks.

Upon receipt of orders for an offensive operation, the infantry-tank team commander determines the essential preparatory steps to be taken. He decides what he will do personally, and what he will delegate to his leaders. His actions follow this sequence:

(1) Confers with the unit commander of the other unit, tank or infantry, and with adjacent unit commanders.
(2) Formulates tentative plan.
(3) Plans the reconnaissance.
(4) Selects an observation post and sends for his unit leaders.
(5) Makes a personal reconnaissance.
(6) Decides upon his plan of attack and submits recommendations.
(7) Issues an attack order.
(8) Supervises execution of the order.

The infantry-tank team commander checks on the status of men, ammunition, and equipment and assures himself that the team as a whole is ready for combat.

In planning his reconnaissance the infantry-tank team commander studies his map and assigns areas of reconnaissance for himself and his leaders. If possible, the commanders of the two units make a combined reconnaissance. If this is not possible, they make a separate reconnaissance and exchange information before the attack order is issued. In addition to a map and ground reconnaissance, the infantry-tank team commander uses any available means of aerial reconnaissance. Aerial photographs and photomaps are of great assistance, and liaison planes may be used to perform close reconnaissance missions.

During his reconnaissance, the infantry-tank team commander makes his estimate of the situation. This is the process of reasoning by which he arrives at a plan for accomplishing his assigned mission. He considers, in turn, his mission, the opposing enemy force and its capabilities, his own force and its capabilities, the terrain, and the courses of action open to him. The estimate is comparatively brief and simple. It is based upon available intelligence, amplified by his personal reconnaissance and the reconnaissance of his unit leaders.

After making an estimate of the situation based on what he has learned, the team commander again confers with the commanders of the other units. He then formulates a plan for effecting teamwork within the infantry-tank team

and with supporting units. His plan must take advantage of capabilities of each unit and at the same time be flexible enough to allow for unexpected occurrences. The team must be prepared to react promptly to changes in the tactical situation.

After completing and coordinating his plan of attack, the infantry-tank team commander issues an attack order to his assembled unit leaders. The order is issued in time to allow the leaders to make their own reconnaissance, issue their orders, and dispose their units for the attack. The order is complete, concise, and simple. It follows the standard five-paragraph sequence:

(1) Information of the enemy and our own troops, including the plan of supporting fires.

(2) The infantry-tank team mission.
    The mission of the tanks.
    The mission of the infantry.

(3) The scheme of maneuver to include:
    Time of attack.
    Line of departure.
    Direction of attack.
    Zone of action.
    Initial formation.
    Objective.
    Plan of reorganization on the objective.

(4) The location of the aid station and other necessary administrative details.

(5) Instructions concerning signal communication; the team commander's location during the attack; and the location of his command post.

To insure that the details of his order are being executed properly, the infantry-tank team commander actively supervises preparations for the attack.

METHODS OF ATTACK

There are several ways in which infantry and tanks may operate in the attack. The method used in any specific attack is determined by the mission, the terrain, the information of the enemy, and the composition of the infantry-tank team.

Tanks initially attack by fire, then move forward rapidly and join the infantry for the assault. In this method the tanks fire initially from hull defilade positions while the infantry moves across the line of departure to a position from which they can assault. When the infantry approaches this assault position or when the infantry masks the tank fires, the tanks move rapidly forward and join the infantry in the final assault. During the assault phase the tanks and infantry may move together, or the tanks may move slightly ahead of the infantry. This method is used when the objective is clearly defined and when the terrain is sufficiently open to permit tanks to fire overhead or to the flanks of the advancing infantrymen. Time is needed for careful coordination and preparation of a detailed supporting fire plan.

Figure 3. Tanks and infantry advancing together.

This method provides effective tank fires to cover the movement of the infantry from the line of departure to the assault position, and it assures close tank fire support at the critical time of the assault. Since tanks can move forward more rapidly than infantry, tanks are exposed to enemy fire for a shorter period of time; furthermore, the infantry is not endangered by enemy fire directed at the friendly tanks.

Infantry and tanks advancing together. In this method the infantry and tanks move forward near each other at generally the same speed. The tanks may advance rapidly for short distances, stop to fire, then move forward again when the infantry comes abreast. This may result in tanks moving faster than infantry for short distances, but in general, tanks and infantry stay close together. This method is used when visibility, fields of fire, and tank movements are

Figure 4. An infantry squad can ride on one tank.

restricted. These conditions exist in fog, towns, woods, and at night. Using this method the tanks provide immediate close-in direct fires, and the infantry protects the tanks from individual antitank measures. (See Figure 3.)

In operations which require long and fast moves the infantry and tanks may advance together with the infantry

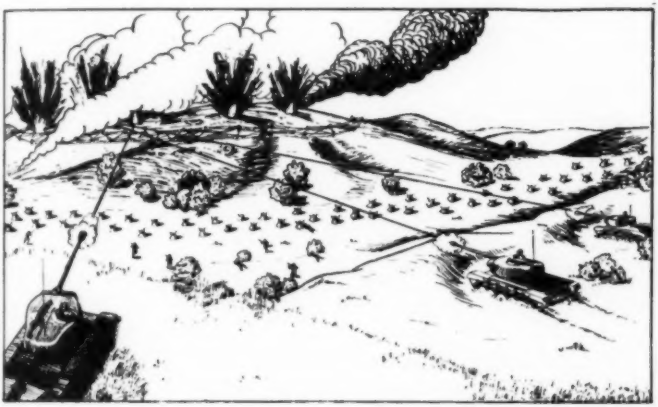


Figure 5. Tanks overwatching infantry.

riding on the tanks until contact with the enemy is gained. This provides speed but results in increased exposure of infantry to enemy fire, particularly to air bursts. It also interferes with the operation of the tanks. It is used primarily for exploitation missions. (See Figure 4.)

Tanks overwatching infantry. In this method tanks fire from hull defilade positions near the line of departure until the infantry reaches the objective or until the tank fires are masked by the infantry. The tanks thus provide fire support, but shock action is reduced. This method is used when either natural or artificial antitank obstacles prohibit the tanks from moving to the objective. (See Figure 5.)

Tanks and infantry converge on the objective from different directions. In this method tanks and infantry advance by different routes and converge on the objective.

Usually the infantry elements move out before the tanks so that both infantry and tanks can close on the objective simultaneously. This convergence of power provides opportunity for surprise, increases fire effect and shock action, and often permits tanks to advance rapidly.

When conditions permit its employment, it is a most effective method. Essential favorable conditions are: open, or partially open terrain free from mines and other tank obstacles, and nearly complete neutralization of enemy antitank weapons by supporting fires and smoke. However, neutralization is needed only during the relatively brief period required for the tanks to move from their line of departure to the near edge of the objective.

This method requires use of a sufficient number of tanks or other weapons to provide ample mutually supporting firepower, and excellent coordination between tanks and infantry to prevent them from firing into each other when they close on the objective. When conditions do not permit speed, infantry accompanies the tanks to furnish close-in protection.

Tanks initially support by fire then pass through the infantry and precede them to the objective. This method uses the armor protected firepower of the tanks throughout the greater portion of the attack. When the tanks advance from their initial firing positions they move rapidly through the advancing infantry to precede it at distances varying from 50 to 300 yards, protected against local antitank weapons by their own fires, fires of the assault rifle unit, and air burst artillery fires in front of the tanks or on the objective. Upon lifting of the supporting fires just prior to arrival of the tanks on the objective, the rifle units immediately open assault fire and follow the tanks onto the objective. Tanks must not advance beyond supporting fires of the assault infantry.

CONDUCT OF THE ATTACK

The team commander determines that the plan of supporting fires takes advantage of the capabilities of all supporting weapons allotted to the team, and that the fires

are properly distributed upon the objective. (See Figure 6.) Details of the plan of supporting fires are normally coordinated with the commanders of the units providing the fire; artillery fires are arranged by liaison officers or forward observers.

The supporting fire plan must be flexible enough to permit changes during the action; unforeseen incidents are to be expected. The final plan includes initial fires and fires before, during, and after capture of the objective. Throughout the operation communication is maintained between the team commander and the supporting units. Supporting fires and the fires of the team are timed so that they complement each other. Troops are given complete information of all supporting fires so they can take full advantage of them.

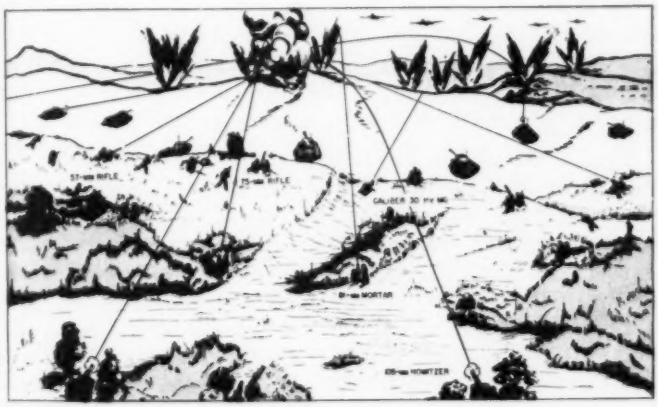


Figure 6. All supporting weapons are used.

The infantry-tank team gains fire superiority over the enemy in its zone by combining intense, accurate fire of artillery, mortars, and other supporting weapons with their own fire and with intelligent, aggressive maneuver. Any combination of fire and maneuver is used. The tanks destroy automatic weapons and armor, and breach antipersonnel obstacles while the infantry protects the tanks from enemy personnel and individual antitank weapons, and

breach antitank obstacles. The infantry-tank team commander exploits diminishing enemy resistance in any portion of his zone of action. When unforeseen situations occur on the battlefield, the team commander promptly changes his dispositions to meet the threat.

The infantry-tank team assaults the objective when the combination of team fires and supporting fires establishes fire superiority and when the members of the team maneuver themselves into an advantageous position. The assault may be made by infantry and tanks together, by infantry alone, or by tanks alone. The full firepower and shock action of the team are best exploited by the combined assault of both rifle and tank elements. Because normal supporting fires are lifted for the assault, the presence of the tanks with rifle elements of the team gives the team a heavy volume of direct fire not otherwise available. In the assault phase the team increases its rate of movement and volume of fire. The tanks saturate the objective with machine-gun fire and use their tank cannon against suitable targets.

Mutual support between the tanks and the infantry remains vitally important during the assault; tanks destroy enemy groups, defensive works, weapons, and equipment; infantry protects the tanks from individual antitank weapons and destroys the enemy in close combat. When rifle elements assault the objective without the tank members of the team, tanks occupy hull defilade firing positions that enable them to continue close supporting fires as long as possible without unduly endangering the assaulting riflemen. When overhead fires are masked by the rifle elements, the tanks often give valuable support by firing on the flanks.

If tank obstacles prohibit the tanks from joining in the assault with the infantry, the team commander expedites the removal or breaching of the obstacles so that the tanks can join the infantry as soon as possible. In those rare instances where tanks assault alone, the team commander uses all available supporting fires from infantry and supporting weapons to cover the tank assault, and the team

is reconstituted at the earliest possible moment by joining the rifle and tank elements.

After the assault has been completed and the objective captured, the infantry-tank team commander quickly disposes his team to repel a counterattack. To provide all-around security for the position, the infantry unit occupies predetermined sectors of the objective as announced in the attack order. The tanks occupy positions covering enemy avenues of approach, especially armor, and they furnish heavy weapons support and antitank protection for the team. (See Figure 7.)

When positions have been occupied, the infantry-tank team commander and his leaders inspect the position and make any adjustment necessary. Artillery is registered on likely avenues of approach by forward observers.

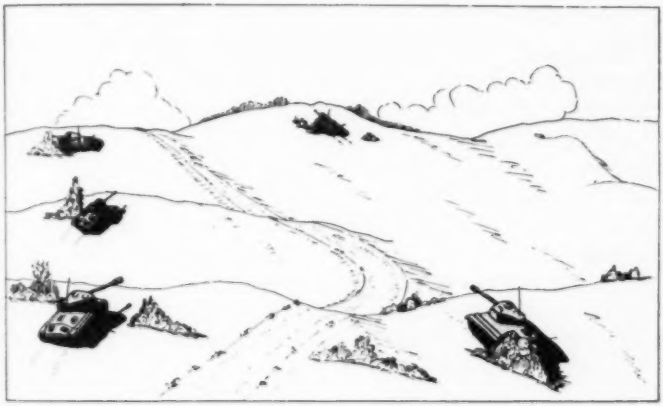


Figure 7. Employment of tanks during reorganization.

While the infantry-tank team is preparing to repel counterattacks and making the necessary adjustments, the team commander prepares to continue the attack. Key personnel are replaced, and a report is sent to the team commander's immediate superior stating the effective strength of the team, the condition of weapons and tanks, and the status of ammunition supply. A new reconnaissance

is made while the position is being organized. Troop leading procedures for continuing the attack are generally the same as for starting it.

The team commander provides an opportunity for the resupply of both infantry and tank units. If possible complete resupply of both the tanks and infantry is postponed until the final objective is captured.

Although the tank unit maintains its own tanks, the team commander is responsible for giving the tank crews sufficient time to perform maintenance. This is particularly true when the tanks have been in action for several days.

The wounded from both infantry and tank units are evacuated through the regimental evacuation system. Tanks are not used to evacuate the wounded unless the tanks are required to move to the rear for other reasons.

EXPLOITATION

Exploitation in battle follows success, taking full advantage of the enemy's disorganization to drive deep into his rear and complete his destruction and defeat. A force strong in tanks and operating as a team may exploit a local success following the defeat of an enemy force or the capture of an enemy position. This operation is directed at destroying all enemy personnel and installations in the vicinity. Tanks and infantry, reinforced by engineers, supporting weapons, and trains, are grouped in efficient combinations; a common combination is the tank company reinforced by an attached rifle company, engineers, and other supporting units.

The infantry may be transported in trucks or they may ride on the tanks. On-tank transportation may be the most desirable method since it reduces road space, decreases supply problems, and keeps the members of the team together. The infantry company commander and platoon leaders ride with the corresponding tank unit commanders. Each platoon of the rifle company is loaded on a tank platoon. The command group of the infantry company headquarters is loaded on the tank company headquarters section tanks.

The infantry-tank team attacks from march column employing all available firepower to overwhelm the hostile force as rapidly as possible. As soon as the resistance is reduced, the infantry immediately remounts the tanks and the team continues on its mission. Prisoners are left under guard to be picked up by following troops. Approaches from the flanks are blocked until the column passes.

INFANTRY-TANK TEAM IN BUILT-UP AREAS

Since the physical aspects of a town favor defensive fighting, close teamwork between infantry and tanks assumes added importance. In this type of fighting infantry-tank teams may be used to make an encirclement, to effect a penetration of the outer defenses, or to conduct house-to-house fighting within the town.

When a defended town is organized as an area of resistance and not as a portion of an enemy defensive line, it may be encircled by an infantry-tank team to cut off the enemy's escape routes and prevent reinforcement or resupply of the enemy garrison. Encirclement is always desirable if the team is strong enough and the terrain is suitable.

When the tactical situation requires that a defended town be captured, an infantry-tank team may be employed to make the initial penetration. Often the best way to attack a town is to attack perpendicular to its long axis. The tanks fire down streets and on buildings which contain located or suspected enemy installations, while the infantry assaults the buildings. The tanks also place fire on the flanks of the assaulting infantry to prevent enemy counter-attacks and to neutralize flanking fire. The tanks, normally from their initial covered position, support the infantry until the first buildings have been cleared, and then they move forward to continue close support within the town.

After the initial penetration has been made, infantry-tank teams are employed within the town to reduce all organized points of resistance. To promote teamwork and control, the town is divided into zones or areas, and units are assigned successive limited objectives. Because of the

danger of ambush, tanks do not move ahead of the infantry, but support the infantry by fire from positions already cleared. During the close-fighting phase the infantry provides close-in protection for the tanks.

Figure 8. Tank employment in towns.

The infantry element of the team:

Under covering fire from the tanks, assaults and reduces positions.

Operates OP's to locate targets and to direct fire.

Assists in neutralization or destruction of enemy antitank guns.

Protects the tanks against individual antitank measures.

Provides smoke to cover tank movement across exposed areas.

Guides tanks to firing positions, around obstacles, and through mine fields.

The tank element of the team:

Fires into the upper stories of buildings to drive the enemy to the basement, where the infantry traps and destroys them.

Neutralizes and destroys enemy weapons and personnel.

Provides antitank protection.

With cannon fire, makes openings in walls and reduces barricades. (See Figure 8.)

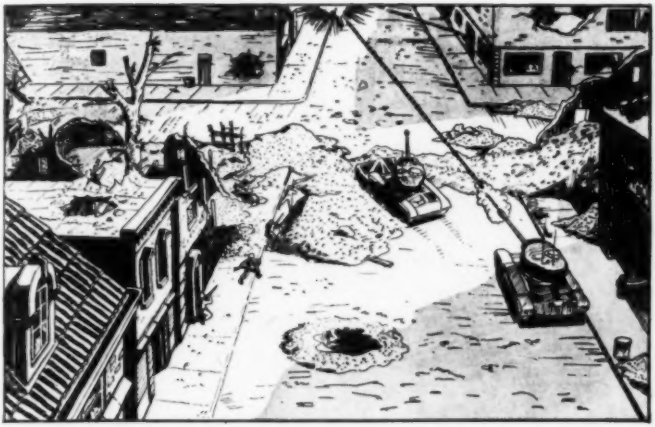


Figure 9. Use of tank-dozers.

Figure 10. Use of flame-throwing tanks.

Because the physical characteristics of a town tend to separate the units of the infantry-tank team, the battle becomes a series of small-unit actions. To maintain control over the action of the whole team, the infantry-tank team commander decentralizes control to small-unit commanders.

In fighting within a town, close artillery and mortar support is difficult because of poor observation and the proximity of opposing troops. However, prearranged fires on street intersections and large buildings may be requested on call. The infantry uses its 57-mm and 75-mm rifles on known enemy targets. Machine guns fire down streets and alleyways and across open spaces to restrict hostile movement and to destroy enemy driven into the open.

Special equipment such as tank-dozers and flame-throwing tanks may be attached to infantry-tank teams engaged in town fighting. The tank-dozers are used to clear rubble from streets and to reduce barricades. (See Figure 9.) By incendiary action the flame-throwing tanks neutralize enemy installations and personnel. (See Figure 10.)

RIVER CROSSINGS

During the initial stages of a river crossing, tanks provide direct fire support and antitank protection. They cover probable approaches for enemy armor on the far side of the river, while the infantry speedily clears the far side of the river to eliminate direct fire on the crossing site so the engineers can begin early bridging and ferrying operation. (See Figure 11.) Some tanks may be ferried across the river in the early stages of the operation to assist the infantry in securing a bridgehead. As soon as crossing facilities are available, the tanks move from their direct fire positions over previously reconnoitered routes to an assembly area near the crossing site. A high priority is given the tanks on the use of the crossing facilities so they can speedily join the foot troops on the far side to support the attack. During a night crossing tanks can be used for fire support if firing positions have been occupied

and adjustments made on targets during daylight. Tank platoons seldom physically accompany infantry battalions during the actual crossing, but once the river is crossed, tanks operate as in any other attack.

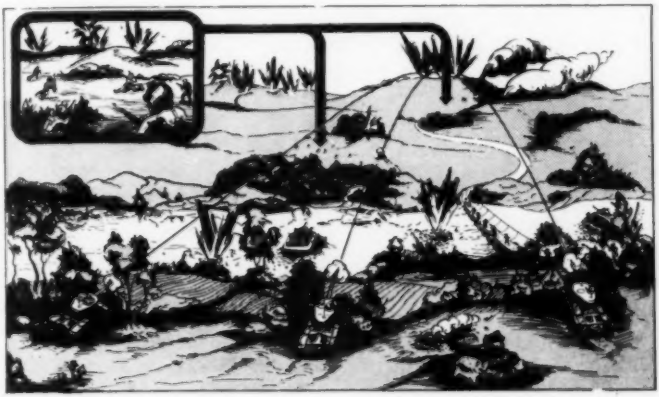


Figure 11. Employment of tanks in a river crossing.

ATTACK OF A FORTIFIED POSITION

The successful attack of a well organized and strongly held fortified position is a major operation requiring careful coordination of all arms. Ordinarily, a relatively long time is taken for preparation, and the participating troops are rehearsed on terrain with mock-ups duplicating the enemy defensive system.

This type of attack requires detailed planning by all units, sometimes to include the action of individuals. The attack on each individual bunker is planned and coordinated with the attack on adjacent bunkers.

The attack is made on a narrow front to achieve a deep penetration. The initial asaulting units are given the mission of breaching the enemy works and widening the breach. Fresh units move through the breach to attack defenses deeper in the zone. If the regiment making the initial assault has additional tank units attached to use as a

reserve, the regimental tank company is attached to the assault battalions.

Because the enemy in a fortified defensive area has detailed counterattack plans for every penetration, a well coordinated counterattack may be expected promptly, even against minor success. Therefore, each commander maintains a reserve and is prepared to employ it quickly in any direction. The attached tank units are used for this purpose.

Figure 12. Attack of a fortified position.

If the assaulting regiment does not have attached tanks, part of the organic tank company is held in reserve to be used against the expected counterattacks.

In the initial assault, the bulk of the tank company is employed well forward to place direct fire on the embrasures of the bunkers being attacked by the infantry assault teams. (See Figure 12.) Normally, these initial bunkers must be taken before the antitank obstacles can be breached. After the antitank obstacles are breached, the tanks move through the gap and continue to support the infantry who are assaulting bunkers deeper in the fortified area. Tank units are prepared at all times to meet a hostile armored counterattack.

NIGHT ATTACK

The decision whether to employ tanks with the assault echelon in a night attack is made with due consideration to their limitations. Employment in the assault echelon is most frequent in attacks executed under natural or artificial illumination. When tanks do not accompany the assault rifle units, tank fires are used initially in the planned fire support, and the tanks join the riflemen on the captured position after it has been secured or just before daylight. The effectiveness of aimed fire is decreased, and there is an increase in the importance of close combat. Difficulties in movement, troop leading, and maintenance of direction are greatly increased, thereby placing greater responsibility on the small-unit commander. Well executed night attacks may have surprise in their favor, with a resulting demoralization of the enemy.

The infantry-tank team can make night attacks against a strong point when sufficient time is available for daylight reconnaissance and detailed coordination. Night attack offers tanks one important advantage by giving them the protection of darkness against long-range antitank weapons. Frequently, objectives are taken in night attacks with relatively light losses, where a day attack would result in excessive casualties. At the same time, however, night attack renders tanks more vulnerable to enemy close-in antitank measures and accompanying infantry must be especially alert to protect the tanks.

Detailed plans for a night attack are made early enough to allow thorough reconnaissance by all units. Definite objectives and boundaries are assigned to each unit and control measures are perfected. Control is simplified by assigning only one direction of attack, and by coordination of communication between the assault units. Direction is maintained by compass, by flares or illuminating shells fired behind the objective, by tracers, or by a combination of these methods. If time permits, the attack is rehearsed on similar terrain, so the tank commanders and squad leaders know what each is to do during the actual attack. Close coordination with artillery is effected before the attack,

and other supporting weapons are laid on definite targets during daylight.

In a night attack it is particularly important that the tank elements of the infantry-tank team be in position by daylight to assist in repelling counterattacks. When conditions prevent the tanks from moving with the assaulting infantry, tank unit leaders accompany the leading infantry elements on foot to reconnoiter routes, make plans for movement around obstacles or through mine fields, and select tank firing positions. The tank unit leader then leads the tanks to the selected positions.

After capturing the objective the tanks and infantry reorganize in the same manner as during daylight. Because of reduced visibility, the effectiveness of tank fire against a counterattacking enemy is limited. The movement of the tanks to firing positions is controlled by infantry guides or a dismounted member of the tank crew.

SNOW AND COLD

In military operations in extreme cold, the mission of the tank element of the infantry-tank team is the same as for normal operations; however, special equipment, special training, and special logistical procedures are necessary to overcome the technical difficulties involved.

In extreme cold, tank unit supply requires use of tractors, sleds, and special oversnow vehicles. In some cases even these vehicles are unable to negotiate the snow, and animals and men are used to bring up supplies. Because of the slow speed of supply vehicles and the lowered efficiency of personnel, supply takes more time than usual. Also, more supplies are needed, especially motor fuel and rations. In some instances, supply is best accomplished by air-drop.

Standing Operating Procedures

What makes some military organizations better than others? All units are built from the same basic raw material—a cross section of the American people with all the varied temperament, abilities, interests, and potential that is characteristic of our population. Why is it then that some units rise to lofty heights of proficiency while others continue to stumble along the road of mediocrity?

The proficient unit is a fine team, working together to accomplish the common mission while the mediocre unit is a disunited group, frequently working at cross purposes or not at all. The good unit has a clear understanding of its job; each element understands the part it plays in contributing to the whole. The poor unit is fraught with uncertainty, misunderstanding, and friction.

This the good leader knows. So he takes steps to insure that his unit will function as a team—that the elements will work together with understanding, without lost motion, and with maximum accomplishment for effort spent. The good leader achieves this end by positive direction in the form of timely orders, concisely and clearly stated. However, once the leader determines the best procedure for accomplishing a given task, and this task becomes a matter of routine, it is not necessary for him to issue a new order each time the procedure must be repeated. Obviously, this is unnecessary duplication. One order indicating the procedure should be sufficient to insure that similar routine tasks are accomplished in a similar manner. In other words, a *standing operating procedure* is almost automatically developed for dealing with routine matters.

Standing operating procedures provide a commander with a means of achieving teamwork and a means of raising standards of performance. They contribute much

toward eliminating confusion and uncertainties within a command. But they are not a cure-all. No unit can reach a state of maximum efficiency and proficiency simply through the employment of sound standing operating procedures, yet on the other hand, no unit can reach this state without them. Since standing operating procedures are so important to unit teamwork and performance we may well examine what they are, how they are developed, and how they are used.

Simply stated, a standing operating procedure is a set of instructions giving the methods to be followed by a particular unit for the performance of those features of operations, both tactical and administrative, which the commander desires to make routine. If a regimental commander, for example, decides that it is desirable to establish a set formation for regimental bivouac, with all units occupying the same relative location each time, the bivouac arrangement is established as a standing operating procedure, thus making it unnecessary to issue many specific instructions each time the regiment goes into bivouac. Or, if a special administrative report is to be submitted at regular intervals, it too is made a standing operating procedure, thus eliminating the necessity for repeating previous instructions.

SOP's promote understanding and teamwork among the commander, staff, troops, and installations. In general, their purpose is to facilitate and expedite operation and to minimize confusion and errors. The promotion of understanding and teamwork is essential to any smoothly running organization. Teamwork is achieved by a clear understanding of what is desired of each element and how their efforts fit together. In fact, training itself is in many cases merely fitting together the efforts of individuals and groups. When these efforts have been fitted together so maximum efficiency is achieved, a high state of training is the result. By carefully considering the processes which can be made a matter of routine, processes that are not greatly influenced by variable situations or conditions and that do not require a new analysis and decision for each situation, a commander can direct a set procedure for their accomplishment, thereby

establishing a standing operating procedure. With a standing operating procedure in effect, each element of the command understands what it must contribute to insure teamwork.

Standing operating procedures may come about in different ways. First, they may be prescribed by higher commanders, and obviously, the method of accomplishing a routine task within a unit must be in conformity with the desires of the next higher commander. Frequently, the successful use of an SOP in any size unit depends upon the use of this same SOP throughout. For example, if a division commander decides that every vehicle will have a permanently assigned driver and assistant driver, this necessarily must be standing operating procedure for all units within the division. Again, if a regimental commander decides that all units will maintain a sentry at the command post entrance to guide visitors, certainly the battalions and companies of the regiment must adopt this matter as SOP.

An SOP is brought about through the specific desires of the immediate commander himself, who may prescribe a set procedure which has never before been a practice within his unit. He may decide, for example, that any officer assigned to conduct a training period will rehearse the instruction and that the officer's immediate commander will check the instructor. In other words, the procedure was created in the commander's mind, or that of his staff, as a result of their personal experience rather than the experiences of the unit.

A commander training a newly formed unit may well draw up a standing operating procedure prescribing how certain routine tasks are to be accomplished. Such an SOP issued early in the training period to promote understanding and teamwork, must of course be revised from time to time in the light of experience or new situations.

The third, and perhaps most important source of SOP development, results from the unit's training as a team. As a unit becomes more proficient it develops certain ways of doing things that seem to work best for that particular unit. Once these procedures are recognized they may be

prescribed as standing operating procedure. They may remain unwritten but they still serve as a trade mark of the unit. All well-trained units develop many standard procedures that become characteristic of the unit, and which aid in developing and maintaining esprit de corps. Such matters as marking command posts, marking routes, characteristic methods of using supporting weapons, patrolling responsibilities, use of radios, location of command posts, type of equipment carried, readiness for counterattack, markings of vehicles or equipment, and many other similar matters often grow into a tacit SOP.

SCOPE OF SOP

Only routine procedure should be made SOP. An SOP should not include matters which are greatly influenced by changing conditions or which are covered in Army Regulations or Field Manuals. If a commander tries to make his unit SOP too all-inclusive, he sacrifices flexibility, his decisions become stereotyped, and he is apt to ignore other solutions. A written SOP may become so large no one will read it. This is particularly true of tactical procedures, for an SOP which is adversely affected by changing conditions must be frequently changed, and by frequent revision it becomes worthless. Instead of developing teamwork and understanding, a too frequently changed SOP creates confusion and conflict.

Let's consider then, from a regimental viewpoint, a few of the processes which can be made SOP. Remember that the scope of an SOP is limited to routine procedures specifically applicable to a unit. Normally, the following matters lend themselves to a set procedure:

Motor movements: Composition of march units and serials, vehicle loads, speeds, frequency and duration of halts, antiaircraft protection, methods of refueling, arrangement of bivouac, methods of feeding, maintenance methods, route marking, advance party composition.

Air movements: Type loads, loading procedures, unloading procedures, preparation of forms, marshaling procedures, planning procedures.

Reports: Frequency, form, dissemination.

Bivouac: Arrangement, security, field sanitation.

Orders: Distribution, method of issue, form.

Burial and graves registration: Reporting and collecting the dead, burial, processing of personal effects.

Intelligence procedures: Reports, responsibilities, handling and processing captured documents, handling and processing prisoners of war, dissemination, map and photo distribution.

Personnel procedure: Reports, handling and processing replacements, leaves, promotions.

Command posts: Interior arrangement, displacement, personnel, use of transportation, marking, message handling, communication layout, defense.

Matters which require a method of accomplishment tailored to the specific situation should *not* be made SOP. A few examples are:

Combat formations: Advance guard composition, use of supporting weapons, methods of attack or defense.

Ammunition: Expenditures, stockage, loads.

Feeding: Ration cycle, times, methods, centralization.

Use of transportation: Controlling headquarters, fixed employment, use of lights, location of trains.

Communication equipment: Fixed employment.

The scope of an SOP will vary for different units. Each SOP is made to fit the requirements of a particular unit and the desires of a particular commander and the next higher commander. An SOP that fits the requirements of one unit may be entirely inappropriate for another similar unit.

PREPARATION

The question now arises as to who prepares the SOP. Before answering this question let us again consider the methods of development. Some of the most workable and desirable procedures within a unit are those which grow with the unit. Many of these procedures will not be ordered by the commander but they will become the accepted method, and deviation will bring confusion. Such procedures are not

ordered but simply develop. They may or may not be committed to writing, depending on the commander's desires. However, if it does become desirable to put such procedures on paper to give them stronger official sanction and widespread distribution, it is prepared by the commander's staff.

In a regimental headquarters the executive officer coordinates the preparation, form, and contents. Each of the sections, S-1, S-2, S-3, and S-4, in conjunction with the special staff, draw up the procedures on those matters of particular interest to them. The S-1, for example, prepares the directive on administrative matters such as reports, personnel procedures, command post layout, and distribution systems. The S-2 covers intelligence; the S-3, matters pertaining to operations and training; and the S-4, supply and evacuation. The contributions of special staff officers, such as the surgeon and the communication officer, are correlated with those of unit staff officers. The actual consolidation is usually done by the S-1 or S-3 under supervision of the executive officer.

The form of publication depends on several factors. If the SOP is fairly extensive, it may be sectionalized by staff functions; one section devoted to personnel subjects, one to intelligence, one to operations and training, and one to logistics. Another form of sectionalizing might be by specific subjects; one section devoted to movements, one to command posts, one to security, and other sections as desired. There is no prescribed form, but the form selected should lend itself to ease of revision. It is undesirable to republish entire sections when it is necessary to change only one or two items within those sections.

STATUS OF SOP

There are two questions which frequently arise pertaining to SOP's. First, are they orders? Second, if they are orders, when is a commander justified in deviating from them? In answer to the first question, SOP's are definitely orders. They are the commander's orders covering routine matters. They are made SOP to avoid repetition of orders. If only matters of a routine nature are included in the SOP, changing circumstances should not have material effect on the

procedures. Consequently, a sound SOP will usually admit only a single interpretation regardless of circumstances. However, since a commander is not blessed with the ability to divine the future, his SOP like any other set of instructions will require some interpretation or revision as conditions change.

Since an SOP is an order, is deviation from an SOP justified? To answer this question, let us consider orders and their application. All orders are based on an estimate of the situation. The estimate is made on those facts known to a commander and his staff at the time. The order is based on this estimate. Frequently a commander finds himself in possession of facts which were unknown to his commander at the time the decision and estimate were made. It is then the duty of the lower commander to transmit these facts to his senior so that they may be included in a new estimate. Perhaps these facts are of such importance that a new decision will evolve. Many times the original decision will remain unchanged, even in light of the new facts. Occasions will frequently arise, however, when the lower commander is unable to acquaint his commander with the new facts, and he must make a decision on his own. In this case, his actions are obvious; using his own judgment he makes the decision he believes his commander would have made under the circumstances. So it is with deviation from SOP. If deviation from the SOP appears desirable, the lower commander acquaints his commander with the facts which make this deviation appear desirable and secures his approval. If the facts cannot be transmitted, he takes the action he believes proper.

ADVANTAGES AND DISADVANTAGES

With a sound SOP, the preparation and transmission of orders is simplified. SOP for routine matters such as teamwork in preparation, manner of reproduction, and distribution, all contribute toward simplicity and efficiency in preparing an order and getting it into the hands of those responsible for its execution. In the absence of an SOP, many routine instructions must be included in each order.

For example, a unit may have no SOP concerning such matters as composition of combat teams, disseminating periodic intelligence and operation reports, antiaircraft protection, reconnaissance, procedures during halts, distribution, or carrying of documents and marked maps. These items are but a few of the many for which instructions should be issued. Without an SOP the orders necessarily will be longer, more detailed, and more difficult to prepare and transmit.

When the issuance of orders is simplified, it then follows that the detailed work of a commander and his staff is reduced, enabling them to spend more time on critical matters. During periods of training a similar principle applies. For example, if units have prescribed areas in which each conducts its training, staff work on area assignment is reduced. If the SOP includes specific measures for training supervision, then new instructions need not be issued at frequent intervals. So it is that when certain processes can be made routine, with standing instructions applicable to those procedures, much time and effort is saved for more important matters.

SOP's have their disadvantages, however. It is these disadvantages that have turned many fine commanders against their use. First, there is a definite danger in attempting to overstandardize. Should processes which are greatly influenced by changing conditions be made matters of SOP, a unit leader must frequently deviate from the SOP. Flexibility is limited or destroyed by too much SOP control. When SOP's are in effect there is a danger of assuming that everyone is familiar with them; obviously, temporarily attached units will not be familiar with the SOP of the unit they are supporting. When SOP's become long, involved, and overly detailed, all individuals and leaders will not have a thorough knowledge of the prescribed procedures and the SOP falls by the wayside. Again, SOP's get out of date, for with a change in command or a change in conditions new techniques may be adopted. An outdated SOP is worse than none. Finally, unit SOP's frequently include procedures which are unproven and which break down under trial. This is

the case when a zealous but long-winded staff officer, trying to impress his commander with volume, is given the task of preparing an SOP.

With the many disadvantages of SOP's it is small wonder that some commanders frown on them. If an SOP is a lengthy published document covering everything from the degree of sheen on pots in the company kitchen to the location of the colonel's desk, then the opponents of SOP's are justified. However, if an SOP is simply the written or unwritten rules which a unit follows in accomplishing routine tasks, if they are flexible in application, and if they represent sound procedures, then an SOP is certainly a useful technique for any team.

An Attack That Failed

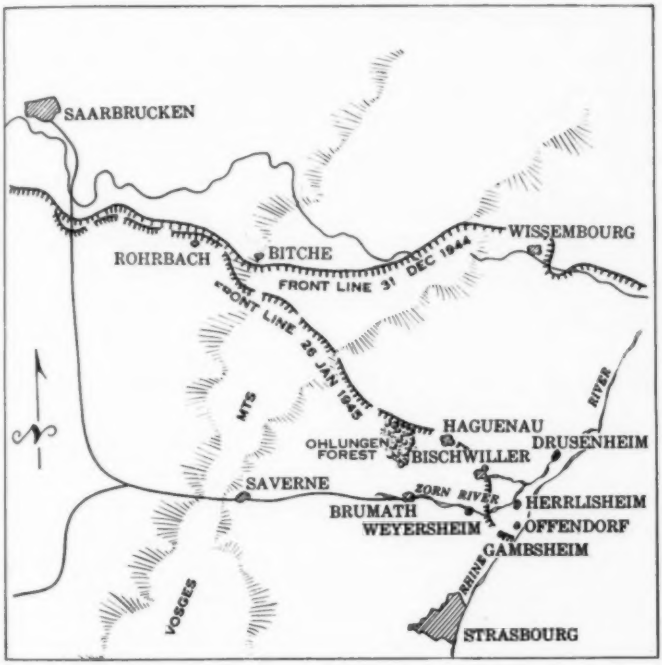
The new year of 1945 was hardly minutes old when the Germans launched an offensive designed to retake the Saverne Gap and annihilate Seventh Army troops in northern Alsace. This attack continued until the last week in January when the furthest advance—a bridgehead across the Moder River into the Ohlungen Forest—was halted by American troops.

The key towns in the German bridgehead were Gambsheim, Herrlisheim, and Offendorf. (See Map 1.) Herrlisheim lay on the main route of advance from the bridgehead area toward the north and was an essential communications center in the German plan. Capture of this town and Gambsheim to the south would make the bridgehead untenable and force the Germans to withdraw back across the Rhine.

At noon 1 February the commanding officer, 3d Battalion, 141st Infantry, 36th Division, reported to the regimental command post at Gries and was informed that the battalion was to be used in conjunction with the attack of the 143d Infantry on Herrlisheim. He was directed to make a reconnaissance and prepare a plan of attack on the town, the plan to be based on three factors: the Zorn River was to be crossed at a site to be secured by elements of the 2d Battalion, 141st Infantry; the town was to be approached from the southwest; and the battalion was to be in position for an assault at daylight 2 February.

Transportation already had been sent to move the battalion to Gries. The battalion commander immediately told the battalion executive officer of the move and directed him to have the company commanders meet him at the regimental CP at 1400 prepared to make a reconnaissance.

The regimental S-2 indicated that Herrlisheim was held by the 2d Battalion of the 2d SS Police Regiment, its strength about two hundred and fifty. It was thought that the main defensive positions were along the edges of the town, with strong outposts along the Zorn River. The entire area was believed heavily mined and booby-trapped.



Map 1

The battalion reconnaissance party assembled on time and left the CP at 1430. Reconnaissance forward was limited to the front lines, from which the party could plainly see the battalion route of attack. The terrain was flat, open, crisscrossed with shallow drainage ditches and small streams. The Zorn River flowed diagonally across the entire front toward Herrlisheim in the distance. This

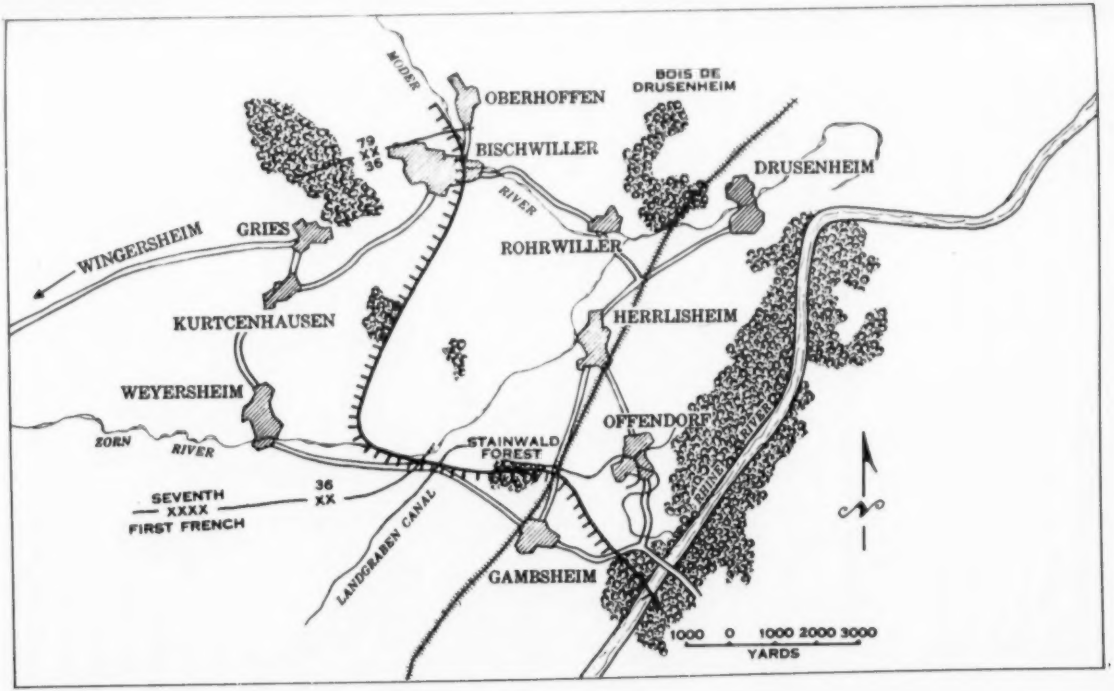
river, confined to its course by small levees rising three feet above the general ground level, was approximately seventy-five feet wide. Cover and concealment were almost nonexistent with the exception of two wooded areas on the enemy side of the Zorn. (See Map 2.) Thus, before the town could be reached, the battalion had to cross 4,000 yards of flat, open country, the ground itself being soft and mushy and offering little support for wheeled or tracked vehicles.

This type of country created in the minds of all officers in the reconnaissance party a feeling of nakedness and exposure, particularly since the previous operations of the battalion during the past five months had been in mountainous, wooded terrain.

The battalion commander returned to the regimental command post at 1630 and was informed that the attack would be postponed for twenty-four hours. Meanwhile, the battalion was to go into an assembly area in Weyersheim and relieve elements of the 117th Cavalry Reconnaissance Squadron which had been ordered to Gambsheim to assist the attack by demonstrating toward Offendorf. (See Map 2.)

The battalion closed into Weyersheim by 2000 and instructions were issued to all commanders and the staff covering the reconnaissance and preparations for the following day. It was now known that Company A, 753d Tank Battalion, one platoon of Company B, 636th Tank Destroyer Battalion and one platoon of Company A, 111th Engineer (Combat) Battalion would be attached to the 3d Battalion for the attack.

During the night of 1-2 February the 1st Battalion established an outpost of platoon strength on the Zorn River. The engineers built a footbridge (see Map 3) and made reconnaissance for armor-supporting bridges along this river and the Landgraben Canal north of the Stainwald Forest. On 2 February further reconnaissance was made of the approaches to Herrlisheim from the vicinity of the footbridge and the Stainwald Forest; it was decided that better flank protection from enemy in Offendorf would


MODER
OBERHOFFEN
BOIS DE DRUSENHEIM
79 XX 36
BISCHWILLER
DRUSENHEIM
RIVER
WINGERSHEIM
GRIES
ROHRWILLER
KURTCENHAUSEN
HERRLISHEIM
WEYERSHEIM
OFFENDORF
ZORN RIVER
STAINWALD FOREST
RHINE RIVER
SEVENTH XXXX FIRST FRENCH
36 XX
LANDGRABEN CANAL
GAMBSHEIM
1000 0 1000 2000 3000
YARDS

Map 2

be gained by crossing the Landgraben Canal near the northwest corner of the Stainwald Forest. (See Map 3.) The reconnaissance also revealed that this forest was heavily mined and that the enemy reacted with artillery and mortar fire to any movement in areas exposed to observation from Offendorf and Herrlisheim.

THE BATTALION PLAN OF ATTACK

At 1500 the next day a meeting was held at the regimental CP and final plans for the attack were discussed with all commanders concerned. The plan was formulated with the idea of leading the enemy to believe that Offendorf would be the initial objective. It was hoped that deception—a demonstration on Offendorf by the 117th Cavalry, and activity in the Stainwald Forest—would enable the assault troops to reach the edge of Herrlisheim with some surprise. Further, there were to be no preparatory fires; it was felt that such fires on Herrlisheim just before the assault would cause the Germans to lay down final protective fires, thus catching the attacking troops in open country.

With these ideas in mind the following attack plan was finally decided upon by the battalion commander: Company I, with one platoon of Company A, 753d Tank Battalion and one platoon of heavy machine guns attached, was to cross the Landgraben Canal at 0300, go northeast and then using the highway as a guide, attack the southeastern edge of the town at daylight and establish a roadblock on the Herrlisheim-Offendorf Road. Company I was then to clear the part of the town that lay east of the main highway. The attached tank platoon was to cross the Landgraben Canal when one of the support bridges was completed. A small force would be left by Company I at the bridge site to accompany the tanks into the town. (See Map 3.)

Company K, with one platoon of Company A, 753d Tank Battalion and one platoon of heavy machine guns attached, was to cross the Zorn at 0300, go east, contact Company I, and attack the southwest edge of the town at daylight. This company's mission was then to attack north, clear the part of the town west of the main highway, and secure the bridge

over the Zorn at the western outskirts of the town. The attached tank platoon was to cross the Zorn as soon as the second engineer bridge was completed, then support Company K's attack. (See Map 3.)

Company L was to follow Company K across the Zorn River, initially occupy positions on the east bank and be prepared to support Companies I and K in the assault.

The 81-mm mortar platoon of Company M was to support the attack from positions in the Stainwald Forest, and from this area also the platoon of the 636th Tank Destroyer Battalion would provide antitank protection, the primary sector of fire covering enemy routes leading to and from Offendorf as it was felt that the greatest threat from German armor would be from the direction of this town.

Artillery support would be on call but no preparatory fires were to be used. Forward observers would accompany both I and K Companies. A cavalry reconnaissance squadron would place diversionary fires on Offendorf at 0530.

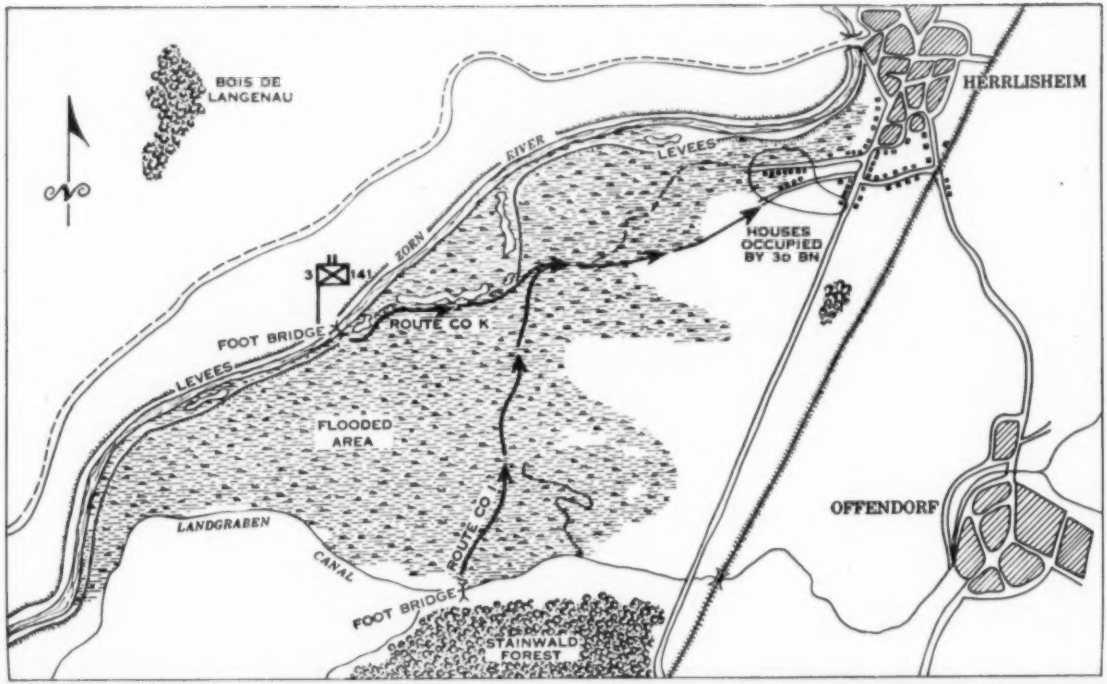
The engineers responsible for constructing the two bridges estimated they would be completed by 0500, thus allowing ample time for the tanks to cross the Zorn and assist the assault at daylight. A platoon of engineers was to maintain these bridges.

Personnel of the battalion antitank and ammunition and pioneer platoons were to carry out resupply missions in the event that vehicles could not follow the route to Herrlisheim.

Elements of the 143d Infantry, after seizing Rohrwiller, were to cross the Zorn and attack Herrlisheim from the north.

THE BATTALION ATTACK

Before the 3d Battalion departed from its assembly area in Weyersheim, the battalion commander was informed by the 1st Battalion that one of its patrols had reached the edge of Herrlisheim and had encountered no enemy positions or troops. Another important piece of information came from the engineers constructing the footbridge over the Landgraben Canal, this message stating that water had covered the original route of approach to the bridge and


BOIS DE LANGENAU
HERRLISHEIM
RIVER
ZORN
LEVEES
HOUSES OCCUPIED BY 3D BN
3
141
FOOT BRIDGE
ROUTE CO K
LEVEES
FLOODED AREA
OFFENDORF
LANDGRABEN
CANAL
ROUTE CO I
FOOT BRIDGE
STAINWALD FOREST

Map 3

that guides were being sent to conduct the troops over a new route.

At 0100 3 February the battalion moved to attack positions in the vicinity of the two footbridges. The weather was unseasonably mild and rainy. Artificial moonlight supporting the division operations from high ground far to the rear cast a dull glow on the low, overhanging clouds. The quiet of the night was broken only by the occasional distant bark of an artillery piece and the muffled tread of feet on the wet, muddy ground.

The battalion commander arrived at the Zorn crossing area, where his initial CP had been established, at 0200. Crossing the footbridge over the river, which had now risen to the tops of its levees, he saw, much to his surprise, that the entire area east of the river was flooded. (See Map 3.)

Regiment was immediately notified of this condition and a patrol was sent along the east levee to determine the extent of the flood. The patrol soon returned, reporting that they had been unable to see anything but water on either side of the levee.

Here, then, was an entirely new situation that had developed rapidly and unexpectedly. Daylight reconnaissance had revealed that the river was higher than normal but the level had remained constant throughout the day. There had been no indication that the Zorn would reach flood stage—a stage that had occurred rapidly during darkness that evening. It could not be determined how or when the flood did occur; all that was known was that what had formerly been dry ground was now under two or three feet of water.

The battalion commander upon learning this information hoped that orders would be received directing postponement or delay of the attack. No changes, however, were received, and at 0300 Companies I and K crossed the footbridges and the attack began. The one change made in the original plan was to have Company K move northeast initially along the levee and then attack directly toward the town. (See Map 3.) The commander of Company L was told that if the flood was so serious that he could not occupy his assigned sector, his company would follow Company K into the town.

After crossing the footbridges the movement of both assault companies became very difficult; in some places the water was waist deep with sheets of ice beneath it. Progress was slow and unsure; clothing was soon drenched and weapons clogged with mud. However, in spite of these extreme difficulties squad and platoon leaders maintained excellent control.

Company I found that it could not move north toward the highway as planned; it was forced to head due north to avoid the flooded areas as much as possible. For similar reasons Company K, after leaving the levee, was compelled to head almost due east. Thus when contact between the two companies was finally established at 0445, there was very little distance between advance elements.

Following contact, the advance to Herrlisheim continued, Company I on the right, Company K on the left, and Company L behind Company K. The advance had progressed little more than two hundred yards from the point of contact when an enemy automatic weapon opened fire directed at the left flank of Company I and the right flank of Company K. Leading elements of both companies engaged the weapon and after a short exchange silenced it.

Although this initial action had occurred far from the edge of town, the enemy was now alert and knew that our forces were advancing. Surprise was probably lost; it was now a question of reaching the town or being caught in the open at daylight.

After a further advance of some three hundred yards, three German machine guns opened fire on Company I. These guns were silenced after a sharp fight and three prisoners were taken.

Following a brief lull in the fighting, both leading companies received heavy direct fire across their entire front, and enemy machine guns caught the exposed troops in a grazing cross fire directed mainly at Company L and the rear of Companies I and K.

It was now 0630 and still dark. No buildings could be seen nor was there any indication of the remaining distance to the edge of town. The leading companies were heavily

engaged and the reserve and supporting elements were caught in the grazing fire sweeping the entire area. To be caught at daylight in exposed positions would mean disaster.

At this point more confusion entered the picture. The battalion commander ordered Company L and the rear elements of the leading companies to withdraw from the area of grazing cross fire; but this withdrawal, once started, soon gathered momentum, and in spite of orders to stop and reorganize at the bridge, continued until the majority of Company L was all the way back to Weyersheim.

During this confusion the rifle platoons of both Company I and Company K were attacking the enemy positions to their front. Company K was able to maneuver its left flank squad into a position from which small arms and bazooka fire silenced the German machine guns firing into that flank. At the same time, a bazooka round fired at a suspected enemy position, struck a house and ignited some debris. The flames clearly outlined a group of houses less than a hundred yards away, and the assault platoons got the first indication of their proximity to Herrlisheim. Once this distance was known, the bulk of both companies rushed to the cover of the buildings.

Until this time control of the assaulting platoons had been excellent. Scattering of individuals during the rush, however, resulted in the companies becoming intermingled and disorganized. It was evident that further advance depended entirely upon rapid reorganization and the arrival of armor.

As dawn broke over Herrlisheim some elements of the battalion were on their initial objective; some elements were located at the bridge; and other elements were back in Weyersheim. The situation could well be described as fluid in more ways than one.

But these were not the only difficulties; the engineers charged with constructing the bridge over the Zorn were having troubles of their own. The river had risen to the tops of the levees and the swift current made bridge building almost impossible. All attempts to build it failed, with the result that at 0400 the tanks, which were to cross this bridge,

were ordered to the other bridge site north of the Stainwald Forest. Construction was halted at the Zorn site.

Conditions at the Landgraben Canal bridge site were somewhat better. The engineers had been able to make fair progress and it appeared that the bridge would be completed, but at what time no one could predict.

The plan for the use of armor was now rapidly failing. The tanks would be unable to cross the Landgraben Canal and begin movement to the town until after daylight. Flooded terrain would restrict movement and make the tanks more vulnerable to enemy fire from Offendorf. A grim reminder of this vulnerability were the destroyed American tanks that littered the open area between the forest and Herrlisheim—the price paid by previous unsuccessful attacks.

The elements of the 3d Battalion that had withdrawn during the attack consisted of the weapons platoons and company headquarters groups, plus the attached heavy machine-gun platoons of I and K Companies, and all of Company L. These elements had been ordered to reorganize at the Zorn footbridge preparatory to re-entering the town; they had, however, in the confused withdrawal, continued on into Weyersheim where they were finally assembled by the battalion executive officer and returned to the footbridge area. Before this reorganization was completed it was 0900, and the battalion commander considered it inadvisable to order the movement to Herrlisheim because of the open, flooded approach and the lack of armored support.

To further complicate the situation the troops who had rushed to the cover of the buildings in the town found, at daylight, that they were in the middle of a strong German defensive area. A further surprise was the fact that they had not reached the actual town itself, but were lodged in an isolated group of buildings on the southwestern outskirts. (See Map 3.) To round out this series of complications, many of the weapons, clogged with mud and water, failed to function.

These troops—the rifle platoons of Companies I and K—were intermingled throughout the isolated group of houses.

Within this same area the Germans occupied strong points in some of the buildings. The areas between the houses were flooded. For two hours officers and noncommissioned officers made every possible effort to reorganize their units and carry on the attack. Company commanders made numerous trips between the various groups in the houses but could accomplish little due to the volume of German fire. During the period of attempted reorganization a platoon leader of Company K was killed and fifteen men wounded.

Inability to reorganize or to maneuver resulted in little change in the location of the troops for the remainder of the morning. Movement depended upon the arrival of supporting armor. At 0900 the I Company commander informed the battalion commander by radio that tanks were needed to knock out enough of the German resistance to permit reorganization necessary to continue the attack.

The tanks, at this time, were still assembled in the Stainwald Forest; all attempts to cross the bridge had failed. The engineers had managed to complete the bridge at 0800, but activity around the site drew heavy antitank and mortar fire on the bridge approaches. Each time a tank attempted the crossing it was forced back into the cover of the woods. These difficulties prevented the tanks from participating in the attack.

The tank destroyer platoon never reached its assigned area in the Stainwald Forest, with the result that German antitank fire continued uninterrupted.

The companies in the town were notified of the difficulties in getting armor across the canal, but were ordered to hold their positions and knock out as much of the enemy resistance as possible.

Meanwhile the Germans increased pressure on the force within the houses. At 1030 two German tanks came north from Offendorf and went into firing positions just east of the point where the Herrlisheim-Offendorf Road crossed the railroad. These tanks placed concentrated fire on a house of the 3d Platoon and 2d Platoon of Company I, and the platoon leader, 3d Platoon, was killed. The German tanks continued firing for approximately thirty minutes,

then an enemy platoon counterattack from the northeast was launched against the house. Troops in the house held off the combined armor-infantry assault for forty-five minutes, but lack of ammunition and lack of support from the other houses, together with the overwhelming enemy fires, caused surrender. The enemy was seen taking captured personnel back into the town.

The fall of this house allowed the enemy to reoccupy some of their dug-in positions from which they proceeded to place additional fire on the troops in the other houses. German reinforcements were seen entering the houses on the west side of the highway; it was apparent that a counterattack could be expected at any moment against the remaining American troops in Herrlisheim.

THE WITHDRAWAL

The two company commanders realized that their situation was rapidly degenerating into hopelessness. Throughout the morning they had been unable to maneuver or expand their positions and they lacked the heavier weapons and armor support necessary to make a break out of the isolated area. Many of their men were out of ammunition. Knowing that from their present locations they could not cover the approach of reinforcements, they decided that the only course of action was withdrawal. If they remained in their present positions it would only be a matter of time before the German armor and infantry again attacked—an attack that would almost certainly result in each American-occupied building being eliminated, one by one, until the entire area was once more in enemy hands.

The battalion commander at the bridge site was notified by radio at 1215, and approved the decision to withdraw in view of the fact that reinforcement or resupply of the assault companies was impossible during daylight.

There were no troops in position to provide cover for the withdrawal. Elements of the 1st Battalion had tried to push frontally toward Herrlisheim over open ground and on the west side of the river, but were unable to approach within supporting distance of the troops in the town.

To provide some protection for the withdrawal, artillery and mortars were ordered to fire smoke missions on an open area southwest of Herrlisheim. Because of inability to adjust, the artillery rounds landed east of the town where a southwest wind drove the smoke away from the desired area. The mortars were somewhat more successful, but most rounds landed short and the smoke dissipated before it reached the houses.

Because of the difficulty in communicating with the groups in each house, the I and K Company commanders were unable to make a definite plan for the withdrawal. Under the circumstances they were well aware that the withdrawal would be a matter of making a break from the buildings and then a long dash over the flat ground to the sparse cover provided by the levees along the Zorn River, the entire route being complicated even further by the flood. They finally were able to select the least flooded routes; but other than that, it was every man for himself.

Before the withdrawal the aid men treated all the wounded, but were forced to leave behind ten men with leg wounds who could not move without litters.

The withdrawal begun, it was a matter of getting back to the river in a hurry. The movement was simultaneous along parallel routes. It was executed in great haste. Some effort was made by a few rifle and BAR men to fire while withdrawing, but most men just made a break for it and hoped for the best.

The route back was as difficult as the route forward with the added problem of intense enemy fire. The Germans pursued briefly but did not press their advantage other than to reoccupy the evacuated buildings.

The bulk of the troops reached the bridge exhausted from their struggle with the enemy, the mud, and the flood. Both company commanders and nineteen men were wounded.

Upon arrival at the bridge all troops were ordered to Weyersheim for reorganization and resupply. Litter squads were sent to search the route of withdrawal for any wounded who had been unable to reach the bridge.

It is interesting and ironical to note that on the nights of 4-5 February the Germans voluntarily evacuated the Herrlisheim-Offendorf area.

ANALYSIS AND CRITICISM

The 3d Battalion attack proved that an initial violation of sound combat tactics can precipitate a chain of very unhappy events. The foremost point with regard to this operation is that it should never have been allowed to begin; it should have been postponed until a complete and thorough reconnaissance had determined the extent of the flood. Too many questions remained unanswered at the start of the attack: How much of the open approach to Herrlisheim was flooded? What effect would this have on construction of the bridges? Were there suitable routes for the tanks? Could supplies and reinforcements be sent if the troops managed to reach the town? Unfortunately, these questions were answered in the form of subsequent failures throughout the attack. Too much remained completely unknown to attempt hasty alterations in the original plan and still hope for a measure of success.

The next point in regard to the attack was the flood itself. Although an outpost was at the bridge site during the entire day preceding the attack, the actual fact that a flood covered the area east of the river was not known to the battalion commander until he crossed the river just before the attack. The flood developed very rapidly; a 1st Battalion patrol had crossed the river earlier in the evening and there was no flood at that time. Failure of the outpost to report the flood resulted in the 3d Battalion meeting a completely unexpected situation. Time did not permit further reconnaissance and major changes in the original plan; therefore, it was a question of going ahead, although unprepared, and doing the job anyway, trying to surmount each unknown condition as it presented itself.

Once the attack started the flood caused extreme difficulty in movement and control; it resulted in Company I contacting Company K far from the objective and it confined the bulk of both companies to a small area. The flood directly

affected the withdrawal of Company L by leaving no alternative, once the withdrawal began, other than reorganization at the bridge site. Company I was unable to approach the town within its assigned sector which resulted in both I and K Companies becoming disorganized, intermingled, and confused when the troops made the rush for the buildings. The flood prevented reinforcement and resupply and also prevented the covering of the route of withdrawal. The flood halted construction of one bridge completely and delayed completion of the other until it was useless to the attack.

Another point for consideration was the lack of tanks to support the attack because of the flood. It was quite obvious during the planning of the attack that armor was essential to success of the operation. Great dependency had been placed on armor support; when it failed to materialize, the effect was disastrous. The initial German counterattack proved conclusively that without armor support, withdrawal was the only alternative.

The final general point in the analysis is morale. Although morale cannot be considered as having a direct and tangible influence on the operation, there are nevertheless some points worth discussion. The troops were worried by the prospects of an attack over flat, open terrain, for they were used to mountainous, wooded country. Further, the visible results of previously unsuccessful attacks did not help a situation that was complicated by the surprise flood and the failure of armor. At no period in this attack did favorable conditions exist.

In an attack of this type it is believed that the final outcome is usually either complete success or complete failure. True, many chances must be taken, but a commander must also take advantage of all courses of action that minimize unlucky chance. It is believed that the chances for success would have been greater if the entire regiment had been committed to a coordinated attack on both Herrlisheim and Offendorf. The latter town was a distinct threat to the entire area; failure to attack it allowed the enemy to reinforce and concentrate his troops in Herrlisheim.

The hoped-for surprise was lost when contact was made with the enemy short of the objective. The use of preplanned artillery concentrations and counterbattery fire at this time would have assisted the advance. The artillery support during this stage of the attack consisted of concentrations on the town itself, but it was not planned fire on other known or suspected enemy positions. Planned fires should have been included in the attack plan in addition to relying on fire missions called for by the forward observers.

The forward observers attached to the assault companies were with the elements that made the initial withdrawal and were thereafter unable to find positions from which observed fires could be placed on the town. The Company I commander conducted some observed fire, but most of the artillery support consisted of unobserved fires into the general area of Herrlisheim.

To summarize, it may be stated that every single course of action undertaken throughout the attack greatly affected the final outcome. Each action had a direct bearing and influence on the other, and the unknown factors made the outcome anybody's guess. Any serious unexpected situation may require a complete change in a plan. This cannot be overemphasized. In other words, look before you leap.

LESSONS LEARNED

1. When a situation arises which has a major effect on the ability to carry out an original plan, consider taking additional time for reconnaissance and change of plan.

2. To attempt an operation under unknown conditions may result in confusion and disaster.

3. If a hasty, last-minute change of plan is made, the expected advantages of this change must be weighed against the disadvantages that exist when all personnel do not know and understand the change.

4. Any enemy position that presents a major threat to success of the operation must be contained by a blocking force or included as an objective.

5. Surprise is a potent weapon; however, plans must include alternate courses of action in the event that surprise is lost.

6. Command support and strong leadership are essential in maintaining morale in the face of a series of unfavorable events.

7. In the attack of a strongly defended town, each man must be thoroughly briefed as to his specific route, task, and objective.

8. Armor support is essential to a successful attack against an armor-supported enemy in a well-defended town.

9. The success of any attack must not be allowed to depend upon one factor alone—such as armor support.

10. Once an objective is gained, aggressive leadership is required by all leaders to effect rapid reorganization and continuation of the attack.

Operation Orders

An operation order is the formal statement of a commander to effect the coordinated execution of a tactical operation in the field. When issuing such orders, commanders generally follow a five-paragraph form which has come into common usage throughout the military service.

The operation order is designed to meet a situation, not to fit a form. However, the form is helpful in that it lends itself to a logical sequence of information and instructions which may readily and clearly be understood by the recipient.

Clarity, conciseness, and timeliness are the essential characteristics of a good operation order. By the first we mean that it is so written that *it cannot be misunderstood.* By the second we mean that only words essential to clear understanding are used; excess verbiage and items having no application to the operation destroy conciseness.

Timeliness, the third essential characteristic, means that the order should be received by the lowest subordinate commander in time for him to make his reconnaissance, prepare his estimate of the situation, complete his plans, issue his own orders, and prepare his troops for the ensuing action.

Below is an example of the five-paragraph operation order—the framework upon which the issuing commander builds his information and instructions:

1. GENERAL SITUATION.
a. Enemy forces.
b. Friendly forces.

2. MISSION.
a. Statement of tasks to be accomplished by the command as a whole.

b. Details of coordination applicable to the command as a whole.

3. TASKS FOR SUBORDINATE UNITS.
a. Mission of each element of the command.
x. Instructions common to two or more elements.

4. ADMINISTRATIVE AND LOGISTICAL MATTERS.

5. COMMAND AND SIGNAL MATTERS.
a. Means of employment of signal communications.
b. Command posts, axis of signal communications, and command relationships.

The five-paragraph mission-type operation order is a comparatively modern innovation designed to meet the complexity and rapid pace of modern warfare. In the early Roman wars when armies were little more than mobs and individual prowess held at the highest premium, there was no necessity for a detailed operation order. Relatively small armies faced each other across a plain and, upon a given signal of the opposing leaders, clashed to the death in a flurry of spears and swords. That signal, probably the raising of an arm or a banner, was actually the operation, or attack order. Its merit was a beautiful simplicity and it sufficed as long as warfare remained in the kindergarten stage.

Later, we find chieftains—Hannibal at Cannae is a classic example—who studied the enemy dispositions and carefully briefed commanders in the contrivance of traps to ensnare the opposition. It is certain that Hannibal's instructions to his commanders contained information of the Roman dispositions and what his own forces would do at a given time. It is here that we can see a definite likeness to the present-day order.

It was von Moltke in the Franco-Prussian war who issued an objective-type order, outlining the over-all objective but leaving the details of the execution to subordinates who successfully fought three major battles and won the

over-all objective, which was the investment of Metz. The main underlying principle of the objective-type order is to state the final objective while leaving certain lines of action to the initiative of subordinate commanders.

The American Army has more or less adopted this type of operation order. In a book entitled "Field Orders, Records and Reports" by Major Eben Swift and approved in 1906 by the War Department, we find the principle set forth much as we now know it. Further, all the examples listed in the current FM 101-5, Staff Officers' Field Manual, adhere to the five-paragraph form.

At this juncture the reader may find it profitable to test his present knowledge of the proper sequence of an operation order by solving the following problem:

You are Captain Company A and plan to issue an operation order which includes the following items. (In the space provided, indicate the correct paragraph number for a five-paragraph operation order:)

Par

(1) This Company attacks 060500 captures HILL 12 (.....)

(2) Emergency signal for lifting supporting fires is a green parachute flare (.....)

(3) 1st Platoon:
Attack on front of 200 yards with right on SHELL ROAD and capture S half HILL 12 (.....)

(4) 81-mm Mortar Platoon fires on HILL 12 commencing 0445 (.....)

(5) Location company command post is behind RIDGE 7 (.....)

(6) There is an enemy machine gun at base of tallest pine tree on slope of HILL 12 (.....)

(7) Route of ammunition advance is SHELL ROAD (.....)

(8) Movement to attack positions will be made in secrecy under cover of darkness (.....)

(Solution on page 89)

A word at this point about abbreviations. You will notice that no abbreviations were used in the above problem, the reason being that certain readers may be unfamiliar with the abbreviations authorized in FM 21-30 and AR 850-150. For example, let us take paragraph 8 of the problem and reduce it to standard abbreviated form: "Mvmt to Atk Pos will be made in secrecy under cover of darkness." Or, in the case of paragraph 7: "Route of Am Adv is SHELL ROAD." Obviously, the possibility for misunderstanding is definitely present if the recipient of the order does not know his abbreviations. And with this in mind we can apply the following rule: Use abbreviations wherever possible to make the order brief, but if there is any doubt *write out the entire word.* Clarity is far more important than brevity. Use abbreviations known to be correct; never improvise. If you find yourself guessing, that is the signal to write out the entire word.

We proceed now to a discussion of the types of operation orders according to their scope, their purpose, and the methods whereby they are issued.

According to their scope orders are either (1) complete or (2) fragmentary. Complete orders tell *all* to all; they convey to all units what they need to know for the ensuing action. On the other hand, fragmentary orders are pieces of a complete order and may range from one word to lengthy documents; but they lack completeness.

Complete orders are generally used to initiate a new action such as a river-crossing or the initial attack of a position. Once the initial action is set in motion by the complete order, fragmentary orders are used to meet unforeseen circumstances and other matters which would serve to render the operation more efficient. Then, time and situation permitting, these fragmentary orders should be combined and reissued as a complete operation order so that all concerned may be abreast and fully aware of the existing situation.

According to their purpose, orders are either (1) warning orders or (2) orders of execution. Warning orders

serve to alert a unit for an ensuing operation, giving it the maximum time for preparation. Orders of execution direct the tactical movement or operation of a command.

Orders are issued by three methods: written, dictated, and oral. The written order is the more difficult and takes longer to prepare. It may include maps, annexes, overlays, march tables, loading tables, march graphs and similar data. However, the written order minimizes the chance for error and furnishes the recipient with a ready reference which can be used as desired.

Both dictated and oral orders are, of course, spoken. When issuing the dictated order, a commander requires that those who receive it shall write each word as it is given. The five-paragraph technique is used and at the end of his order the commander answers questions patiently, at the same time assuring himself that it is thoroughly understood by all.

In the oral order the commander speaks from notes and requires the recipients to take notes. This method is faster than either the written or dictated order and has the added advantage of permitting the commander to forcefully impress his personality and will upon his commanders. Again the five-paragraph sequence is employed and the commander affords an opportunity for questions at the conclusion. All questions answered, he then synchronizes the time. It is well to remember that, prior to the issuance of an oral order, the subordinate commanders should, if possible, be oriented on the ground.

Certainly all of us want to issue good orders. To do so requires experience, a thorough marshalling of the facts before presentation, and a smooth continuity of thought on the part of the issuing commander. Since at regimental and lower levels the oral order is frequently employed, let us now take two examples of this type and decide which of the two we would rather give or receive. Our decision should not be difficult.

EXAMPLE 1

Lieutenant Colonel BOTCH, CO 1st Battalion, 1st Infantry, is issuing an operation order to his company commanders and staff in the battalion CP. No, he has not first oriented them on the ground—the map will do...

"Well—hmm—we'll attack vigorously—hmpff—yes, vigorously at five in the morning...got that? Yes, well, this is Operations Order number thirteen—yes, thirteen. A and—uh—B Company abreast...Yes. Got to have radio silence about this...Overlay here gives administrative details...

"As I said before, C Company is—ah—battalion reserve...of course..Yes...Signal for lifting support fires, that is, the Heavy Mortar Company supports the attack...is—hmm—a green parachute flare...in our zone ....that is, the Second Battalion is abreast of us...Yes, a red parachute flare in their zone...got that?....Well, the objective, that is, the regimental objective, as I said before, is KELLEY HILL and FREY RIDGE... then on to HARMONY CHURCH AREA...that is, on orders from regiment...we go to HARMONY CHURCH after KELLEY HILL and FREY RIDGE...Yes...the Second Infantry will assist by firing on...Umm—firing South and Southeast of KELLEY HILL...when ordered...hmpfff...let me see...see overlay, as I said, for details...Now, the tanks, that is, we have some tanks attached...the Heavy Tank Company protects from—ah, mechanized attack...Now, D Company here ...the Heavy Machine guns fire on STRICKLAND RIDGE...until they...."

Let us cut our fictional BOTCH off the air right now; obviously he is beyond redemption; obviously he had not marshalled his thoughts, if, in fact, he ever had any to begin with. Close study of his order might eventually produce the information that an attack was to take place, but fortunately he was relieved before he had a chance to botch it.

We now come to Example 2. Before we give it, let us see what you can do with the following problem. We will not use abbreviations in the problem, but in the solution, which will do double duty as both solution and example, abbreviations are used. This will afford you an opportunity to compare the entire word and its authorized abbreviation.

The items for your oral order appear below in jumbled form. Arrange the items in the proper sequence by indicating in the space provided the correct place for each.

Par

a. This is Operation Order 13 (.....)

b. Battalion attacks 240500 September, Company A on right. See overlay (.....)

c. Essential Elements of Information:
Determine any enemy withdrawal from KELLEY HILL (.....)

d. Radio silence until 240500 (.....)

e. Line of departure is present front lines (.....)

f. Companies report their command posts (.....)

g. Company B:
Attached: 2d Platoon Heavy Tank Company
Capture north half KELLEY HILL
Prepare to continue attack on order (.....)

h. Company C will be battalion reserve
Follow left company
Maintain contact with units on flank (.....)

i. Emergency signals for lifting artillery fires:
In 1st Battalion zone a green parachute flare
In 2d Battalion zone a red parachute flare (.....)

j. Any questions?
It is now 1405 (.....)

k. Limit forward daylight reconnaissance to 3 men (.....)

l. Company A:
Attached: 1st Platoon Heavy Tank Company
Capture south half KELLEY HILL
Prepare to continue attack on order (.....)

m. Battalion boundaries:
Right boundary: 1st DIVISION ROAD to 1st Battalion
Left boundary: (18.5-21.2) (20.0-20.0) (22.0-22.0) (25.0-22.5) (.....)

n. Company D: Prepare to assist 2d Infantry capture BUMA HILL and TURNER HILL on order:
Machine-gun platoon fire on targets on STRICKLAND RIDGE until masked, then displace forward and support attack on KELLEY HILL
Mortar Platoon from positions in draw behind DAVIS HILL initially fire on targets on STRICKLAND RIDGE, then displace forward and support attack on KELLY HILL
75-mm Rifle Platoon support attack (.....)

o. You have received all the latest information on the enemy (.....)

p. Regiment attacks 240500 captures KELLEY HILL-FREY RIDGE, continues attack on orders to HARMONY CHURCH AREA
Formation 1st and 2d Battalion abreast (.....)

c. Heavy Tank Company (less 3 platoons) protects from mechanized attack (.....)

r. Heavy Mortar Company supports attack (.....)

s. 1st Field Artillery Battalion is in direct support 1st Infantry (.....)

t. Administrative details—see overlay (.....)

u. Are there any questions on orientation? (.....)

v. Battalion route of ammunition advance is 1st DIVISION ROAD (.....)

w. Battalion Aid Station is junction of SANTA FE TRAIL and ARMORY CREEK (19.3-21.2) (.....)

x. 2d Infantry will assist capture of KELLEY HILL by fires south and southeast of KELLEY HILL on order (.....)

At this point, a sugestion: make a set of notes from which you could issue the oral order. Now let us proceed to the command post of BOTCH'S successor and see how he goes about it. Paragraph numbers would probably not appear but are placed here for your convenience.

EXAMPLE 2 AND SOLUTION

This is Opn O 13
Are there any questions on your orientation?
Take notes.

1*a*. You have received all the latest information on En.

b. Regt Atks 240500 captures KELLEY HILL-FREY RIDGE, continues Atk on O to HARMONY CHURCH AREA. Formation 1st and 2d Bn abreast.
2d Inf will assist capture of KELLEY HILL by fires S and SE of KELLEY HILL on O.
1st FA Bn is in D/S 1st Inf.
Hv Mort Co Spts Atk.
Hv Tk Co (less 3 plats) protects from Mecz Atk.

2. Bn Atks 240500 Sep, A and B Co abreast, A on right. See overlay.

3*a*. Co A:
Atchd: 1st Plat Hv Tk Co.
Capture S ½ KELLEY HILL.
Prepare to continue Atk on O.

b. Co B:
Atchd: 2d Plat Hv Tk Co.
Capture N ½ KELLEY HILL.
Prepare to continue Atk on O.

c. Co D:
Prepare to assist 2d Inf capture BUMA HILL and TURNER HILL on O.
MG Plat fire on Tgts on STRICKLAND RIDGE until masked then displace Fwd and Spt Atk on KELLEY HILL.
Mort Plat from Pos behind DAVIS HILL fire on Tgts on STRICKLAND RIDGE then displace Fwd and Spt Atk on KELLEY HILL.
75-mm R Plat Spt Atk.

d. Co C is Bn Res.
Follow left Co.
Maintain contact with units on flanks.

x.(1) Limit Fwd daylight Rcn to 3 men.
(2) EEI: Determine any En withdrawal from KELLEY HILL.

4. Adm details—overlay.

5*a*. Rad silence until 240500.
Emergency signals for lifting Arty fires:
In 1st Bn Z a green Prcht flare.
In 2d Bn Z a red Prcht flare.

b. Cos report CPs.
Any questions?
It is now 1405.

If parts of this solution are not clearly understood, it is suggested that you refer to the five-paragraph framework of the Operation Order outline on Page 78. The logical sequence of information and instructions contained in that outline will lend themselves to a clear understanding of the solution.

Up to this point we have discussed the definition of an Operation Order, traced its evolution to the present, outlined the framework, stated its scope and purpose; we have discussed the methods of issuing them, talked briefly about abbreviations, pointed out the three essential characteristics—clarity, conciseness, and timeliness—and given you a couple of problems and their solutions.

Now let us look at a few tricks of the trade—the invaluable but often unwritten aids gathered from long experience.

First, we capitalize geographical points, such as hills, rivers, cities, etc. Capitalization sticks out plainly in the body of an order, making it easy to read and refer to. Further, it decreases the possibility of overlooking an important point.

Second, we avoid negative statements and employ positive expressions. For example: "Extra ammunition will not be issued until 0300" is somewhat negative. It is better

to say: "Extra ammunition will be issued 0300." Positive statements promote clarity.

Third, in designating areas, our own or hostile, we start at a point on the right front and proceed counter-clockwise, mentioning particularly prominent terrain features. In mentioning boundaries we also start from right to left, but in the event that we are going forward in the attack we can logically name points on a boundary from rear to front; and if defending or retreating we can with logic start from the point nearest the enemy and mention succeeding points along the boundary to the rear; that is, the *direction in which we are going*. Roads also are identified from right to left and from rear to front in the attack, or from front to rear if the movement is retrograde.

The use of the terms "right" and "left" may be confusing in an order. It is better to employ compass designations such as "the eastern half" or the "western half," "northern sector" or "southern sector." The use of compass terms prevents misunderstanding. When "right" and "left" are used, they may be interpreted to mean right and left as you face the enemy. We often confuse ourselves with such terms as "the enemy's right flank" or "the enemy's left flank." It is better to say "the enemy's north flank" and "the enemy's south flank."

Fourth, use overlays to clarify and shorten the operation order. When employing an overlay (1) identify it with the pertinent order—thus "Overlay No 1 to accompany Operation Order No 4" (2) identify it with the map used in the operation order by placing the map reference on the overlay, and (3) orient the overlay with coordinates from the map. Overlays are important because they paint a graphic picture of a situation with a few brief symbols and terms.

Lastly—and most important of all—orient your subordinates on the ground before issuing your order. Nothing takes the place of a good look at the ground, not even the best of maps in the most comfortable of command posts.

Seldom is a situation so abnormal that it does not provide opportunity for ground orientation by observation.

SUMMARY

The operation order is designed to meet a situation, not to fit a form. While we have discussed the form at some length in this article, it should be regarded only as a convenient and logical method of transmission. Military leaders must be able to issue good orders, with clarity, conciseness, and timeliness. Requirements for this are unceasing study and application.

SOLUTION TO PROBLEM ON PAGE 80

(1) 2; (2) 5*a*; (3) 3; (4) 1*b*, (5) 5*b*; (6) 1*a*; (7) 4; (8) 3*x*.

Battlefield Illumination

Battlefield illumination is not a new experiment. The ancient Roman Legions conducted night operations by the light of crude hand-carried torches. The use of this illumination was made impractical, however, by the invention of the cross-bow, which had sufficient accuracy and range to inflict casualties on the bearers before the torches could be brought within effective illuminating range. The lantern supplanted the torch and increased the range of the illumination. It also had the added advantage of being directional. Once again, however, weapons won the struggle for supremacy as the firearm became the principal instrument of warfare. This supremacy of weapon over light was recognized to such an extent that our concepts of offensive action at night were predicated on two major factors; secrecy and surprise. Defensively, we trained in the use of flares to illuminate the battlefield around our position, but we generally failed to take advantage of illumination for offensive action.

In the European Theater of Operations the use of battlefield illumination in offensive action received its first test in modern warfare. The record will attest to its success. The attack by the 3d and 75th Infantry Divisions in the Neuf-Brisach area during the reduction of the Colmar Pocket is an effective example of the employment of battlefield illumination.

The action took place during the period 4-8 February 1945. The area was very flat, and the trees were practically devoid of foliage. Since the trees themselves provided a slight degree of concealment, the lights were emplaced behind the wooded area and the light beams were angled over the top of the trees in the direction of the area to be illuminated.

Throughout the period the weather was rainy and cold and the sky was overcast with low-lying clouds. Using the light which was reflected from the clouds and diffused over the area by the misty atmosphere, the attacking troops were able to conduct offensive operations at night with greatly increased efficiency. All units concerned agreed that the lights aided materially in control, the recognition of terrain features, and the lateral contact between units. Speed of movement, ease of supply, assistance to night driving, and increased efficiency of outposts and outguards were other advantages.

One platoon (6 searchlights) provided all the light necessary for this operation, which was conducted on a frontage of 5,000-6,000 yards. Five of the lights were in operation all night for four successive nights; the sixth light was used whenever it was necessary to change the carbon or perform other maintenance on one of the operating lights.

Organization commanders of the 3d Infantry Division recommended that lights be used in future night operations.

During the war we used searchlights, flares projected from the ground, flares dropped by aircraft, and illuminating shells fired by howitzers and mortars. The searchlight most frequently used was the 60-inch military searchlight formerly employed by antiaircraft artillery units. Since lights are no longer needed by antiaircraft artillery units, the lights have been assigned to the Corps of Engineers for use on ground illumination missions. It has been recommended, but not yet approved, that these lights be transferred to the Field Artillery. Present plans contemplate one complete battalion of these lights for each field army.

The recommended organization for these searchlight battalions is a headquarters and service company and three companies of three platoon each; platoons to be composed of three squads, and each squad to have two lights. This gives 54 searchlights to each battalion. Squads will normally operate one light at a time to insure continuous operation. It requires approximately one minute to change carbons

in these lights, but one will be in operation while the other is being loaded. One platoon is capable of furnishing direct light for a zone of attack up to approximately 1,000 yards in width and indirect light for a considerably larger area.

Let us consider the capabilities and limitations of these lights on ground illumination missions. This illumination may be direct or indirect. In direct lighting the lights occupy positions which have a direct line-of-site coverage of the target area. (See Figure 1.) Direct illumination produces an intensity approximately equal to daylight, and all movement within the target area is easily seen. The firing of all weapons is greatly simplified, including adjustment of indirect fire, and direct fire by tanks. Control and direction is greatly simplified. Direct illumination also blinds the enemy as he is looking toward the source of light.

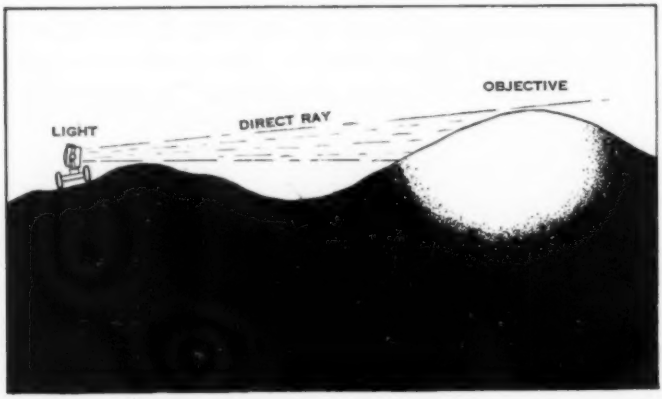


Figure 1. Direct lighting.

The primary disadvantage of this type of illumination is that the lights are exposed. The enemy may be expected to use every means at his disposal to eliminate the lights, and, since they are exposed to his view, his task is somewhat simplified. Enemy troops directly to our front and in

the area covered by the beams of light will not be able to determine the range accurately, but enemy located on the flanks outside the illuminated area will be able to adjust accurate fire on the instruments. Hence, whenever possible, additional lights are set up on the flanks to blind enemy observation from the flanks. These flanking lights also deceive the enemy as to the exact objective of the attack. (See Figure 2.) When practicable, direct illumination lights are placed in position areas which are defiladed from hostile flank observation—this is particularly necessary for the lights placed on the extreme flanks.

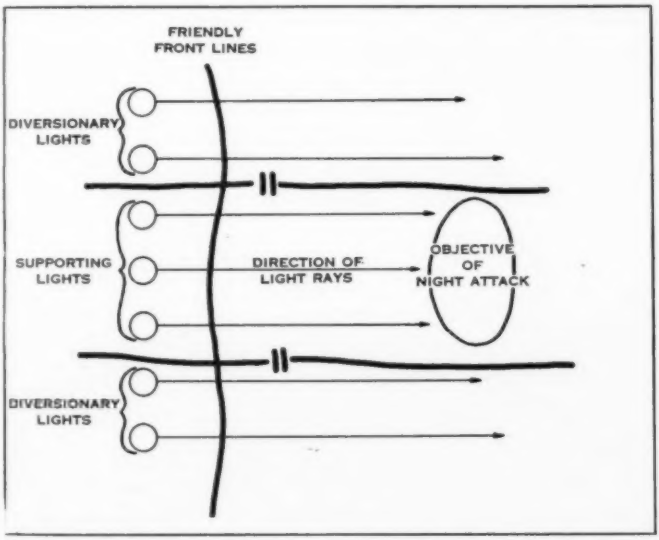


Figure 2. Employment of diversionary lights on flanks of actual zone of attack.

Illumination by indirect lighting is by diffusion or reflection. In indirect lighting by diffusion the instruments are placed in defiladed positions and the beams are centered over the target area at a minimum elevation. (See Figure

3.) At the junction of the beams, the tiny particles in the atmosphere cause the area beneath to be illuminated by a diffusion of the light rays. The junction of light beams must be directly over the target area to secure maximum results.

Indirect lighting by reflection is obtained by placing the instruments in defiladed positions and directing their beams at low-lying clouds, which reflect the light back to the earth. (See Figure 4.) The clouds should be from 500 to 3,000 feet from the ground and should be directly above the target area. The intensity obtained from either of these methods of illumination is roughly that of a half-moon; hence the term "artificial moonlight."

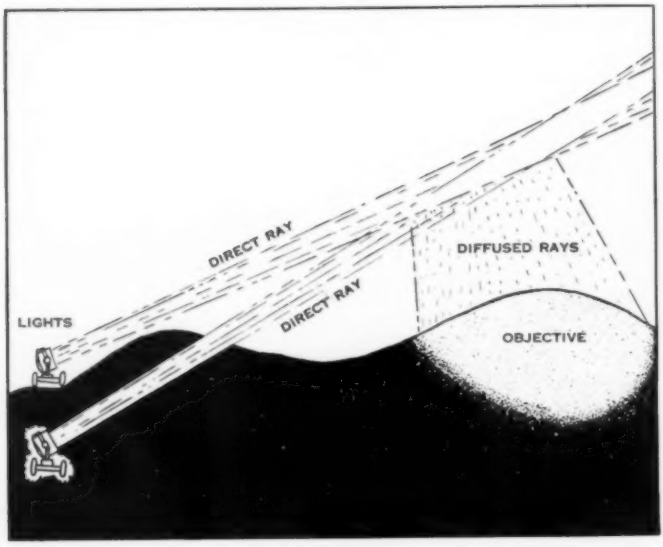


Figure 3. Indirect lighting by diffusion.

The British Army used both diffused and reflected light quite extensively to illuminate truck supply routes forward of the blackout line. Their term for this type of illumination is "movement light." This lighting gave vehicle drivers

partial visibility in the area and at the same time made it possible to blackout the area rapidly when necessary.

The advantages of direct lighting over indirect lighting are obvious; direct lighting provides much greater intensity in the target area and is much less adversely affected by atmospheric conditions such as rain, fog, sleet, and snow. On the other hand, the principal disadvantage of direct lighting is the unconcealed location of the lights.

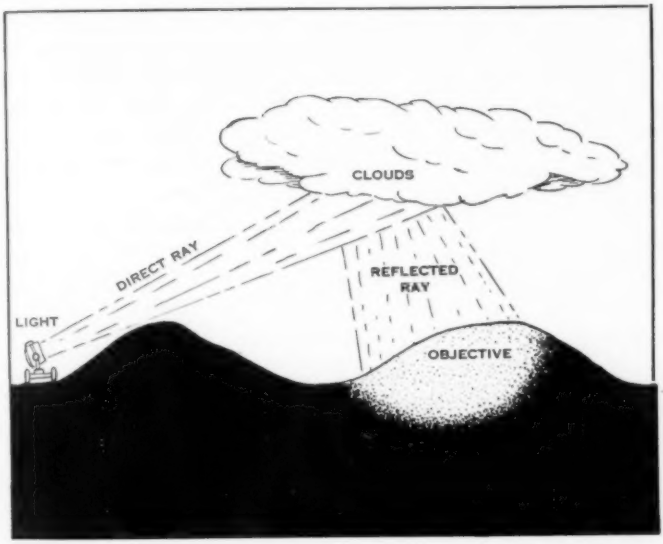


Figure 4. Indirect lighting by reflection.

During the war the British Army produced an armored vehicle known as a Canal Defense Light or CDL. This name is purely camouflage, as was the name tank in World War I. These CDL's are substantially a very powerful light inside an infantry tank. The light within the tank is directed at mirrors mounted on top of the tank, and the light beams are reflected toward the target area. Thus, the actual source of the light is protected by more than 5 inches of armor. These vehicles carry a powerful projector which emits a

fan-shaped flickering beam which illuminates a wide field and dazzles the eye. The vehicle is designed to precede or accompany infantry in the night attack, relying on its armor-plate for protection. Some believe that several of these vehicles moving generally abreast of each other will blind the enemy and will make pin-point detection of the light source very difficult, especially from the front. At the same time the tank-mounted lights should provide excellent visibility for friendly troops.

Because of the limited number available, these vehicles were employed only in static situations and were never tested in an infantry night attack role. They assisted greatly in the illumination of the Rhine River bridgehead, but only from stationary positions. The idea behind the creation of this vehicle seems sound, and it is probable that vehicles of a similar nature may be used in the future.

Since the end of the war the Army Field Force Boards have been conducting extensive tests and research to determine the best method of obtaining efficient battlefield illumination. These tests have included flares of various types, illuminating shells of varying calibers, and the use of artificially created clouds in conjunction with ground searchlights.

The shortcomings of ground-projected flares such as those fired from the hand-operated ground signal projector are that they lack sufficient range and burning duration for efficient use in offensive operations. These flares are suitable for communication and to a lesser degree for illumination in front of a defensive position. The parachute flares dropped from aircraft have greater intensity and duration; however, their employment involves a night air mission requiring pin-point precision by low-flying aircraft. To maintain illumination over the target area for any period of time requires many sorties by low-flying aircraft. Present high speed aircraft experience considerable difficulty in accurately locating any pin-point target at night, particularly at low-level, and antiaircraft weapons using mechanical tracking and computing devices may make flare missions too costly for slow-flying liaison planes.

Experiments in laying artificial clouds by aircraft spraying fog-oil smoke have not proven entirely satisfactory because it is extremely difficult for the aircraft to locate the target area at night. Fog-oil smoke clouds provide more efficient reflecting surface than ordinary atmospheric clouds, however, the difficulties of coordinating a night air mission with a night ground attack have not been eliminated. There are distinct possibilities in this method of illumination, however, if some of the control difficulties can be resolved.

At present, the most efficient illumination appears to be 155-mm howitzer illuminating shells. These shells can be fired over any desired area within the range of the weapon. The flares have a burning time of approximately one minute and they illuminate an area approximately 1,000 yards in diameter. The intensity is sufficient to expose movement within the illuminated area at approximately 2,000 yards, and to permit adjusting artillery and direct-fire weapons. Two guns, firing at half-minute intervals, are capable of maintaining this illumination over an area all night. This would require an ammunition expenditure of 120 rounds per hour—which is not excessive.

The 105-mm howitzer illuminating shell is also effective for battlefield illumination as it has most of the advantages of the 155. Area illumination with the 105 requires three shells per minute instead of two because the 105-mm shell is only two-thirds as bright. The diameter of the illuminated area is about two-thirds that of the larger shell.

The light furnished by either of these illuminating shells is sufficient to permit tanks to maneuver and to fire their cannon using their light sight reticles. Indirect lighting by searchlights seldom affords this advantage.

Experiment and research continue in this field. New methods and new techniques are being developed that will permit an aggressive attacker to pursue an advantage by night as well as by day.

An alert enemy soon becomes familiar with the tactical habits we form. The results of habitually halting each night are illustrated in a statement (*Defeat in the West*) made by General Diestel, commander of the 346th German Infantry

Division. Speaking of the period immediately following the Normandy breakthrough he said:

> As soon as we were safely lodged behind a river, we we would find that our left flank had disintegrated and that we were in danger of being encircled. We would then move back again. We were never hurried in these movements because of the systematic and thoroughly organized tactics of the Allies. When we had been thrown back during the day we always knew there would be a pause at night when the enemy would regroup for the next day's operations. It was these hours of darkness that enabled us to retire without suffering many causalties.

We cannot again allow ourselves to become part-time attackers. To avoid this limitation, we must have efficient means of illuminating the battlefield so that we can attack in force whenever we choose—day or night.

Medical Aspects of Arctic Warfare

As recently as fifty years ago the United States was adequately protected from aggression by the mere presence of two oceans, a Monroe Doctrine, and the so-called impassable, frozen Arctic. The experience of the past eight years has demonstrated how narrow a barrier an ocean can be, especially in war. A Monroe Doctrine means little without the strength to make it a reality. The current question is: does the Arctic provide adequate protection for our northern frontier?

At first glance, a map of the Arctic Ocean suggests another familiar region of the earth—namely, the Mediterranean Sea. With a well-known region in mind, it is easier to visualize the expanse of the Arctic Ocean. In broad terms, the Arctic Ocean is six times the size of the Mediterranean Sea, and two-thirds of the ocean is covered with pack ice. Actually, the Arctic is defined on the basis of a climatic boundary rather than that of the Arctic Circle. The Arctic is defined as that region in which the average temperature for the warmest month is less than 50° F. This climatic boundary coincides roughly with the timber line. (See Figure 1.)

History and industrial developments indicate that man is able to live, work, and fight in the Arctic. There is evidence that man has lived and worked in the North American Arctic since about 25,000 B.C. In the 8th century the Irish colonized Iceland, and in the 10th century Eric the Red colonized the west coast of Greenland. Both of these lands are Arctic. In the 15th century the seafaring nations of Europe probed the Arctic Ocean for a Northeast and Northwest passage to the riches of China and India. The discovery of an easier route around the Cape of Good Hope slowed exploration of the Arctic Ocean. It

wasn't until 1870 that ships actually sailed the Northeast and Northwest passages to the Pacific Ocean.

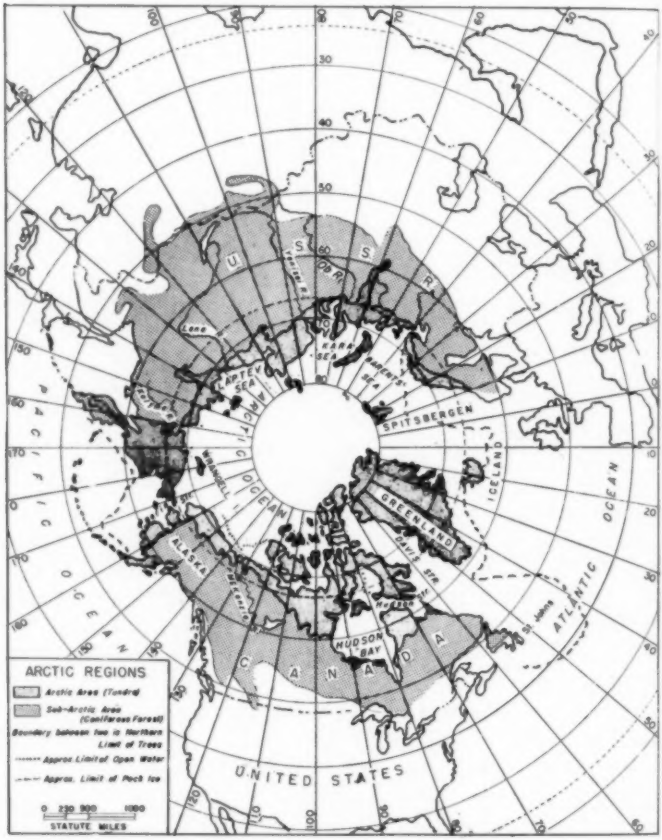


Figure 1. Arctic Regions.

Since 1920 exploration of the Arctic has progressed rapidly. The possibilities of air travel in the Arctic have been demonstrated conclusively by many nations, principally the U.S.A. and the U.S.S.R. Sir Hubert Wilkens has demonstrated the possibilities of travel under the ice of the

Arctic Ocean by submarine. The Scandinavian countries are exploiting the mineral deposits of their Arctic possessions. Coal mining is carried on throughout the year on Spitzbergen, an island roughly 500 miles from the North Pole. Iron mining is the chief industry of Kiruna, a city bordering on the Arctic. The Aleutian Islands of Attu and Kiska were considered to be of enough strategic importance to be captured and held by an armed force in World War II. Murmansk and Igarko are excellent sea ports on the Arctic Ocean. The problem of ice in sea lanes have been solved by joint action of ice breakers, land stations and air surveys.

Nevertheless, one of the difficult obstacles to be overcome in training for Arctic warfare is the psychological obstacle of fear of the cold and unknown. A ground force cannot accept the concept of "survival only". The infantry soldier, particularly, must be indoctrinated with the "usualness" of Arctic warfare, just as he has been indoctrinated for and accepts warfare in the desert, jungle, and mountains. Acclimatization of at least one month is essential in cold weather training.

Warmth in the cold becomes less of a problem when the individual understands a few simple principles of clothing. The secret of warmth is a layer of dry, dead air between skin and outer clothing. Dry, non-moving air is an excellent insulator. Body heat is prevented from escaping, and cold does not reach the skin. Therefore, inner clothing is made of a porous, spongy weave, flexible, loose, and in layers.

A spongy weave creates many small cells of non-moving air. Loose clothing in many layers creates more dead air space. Layers of clothing have the additional advantage that, as the body becomes overheated, layers may be removed. As activity decreases and the body becomes cool, layers are added. In spite of extreme cold the body continues to perspire, and will perspire more as physical activity increases. As the dead air becomes moist, it loses its insulating property; clothing becomes a conductor, loses heat, and is cold. Therefore, inner clothing must be able to absorb a certain amount of moisture to keep the dead air dry.

To avoid the detrimental effect of excessive moisture from perspiration, too much clothing must not be worn. During periods of activity, layers of clothing are either removed or the clothing is ventilated by loosening the outer layers and shaking the clothing.

The outer surface is preferable wind-proof and absorbent. Almost everyone has had the experience of wearing a rubber raincoat on a hot day. The inside of the raincoat becomes covered with the moisture of perspiration. The same thing happens in extreme cold unless the outer layer is absorbent enough to contain the sweat. A plain rubber coat in the extreme cold collects moisture, and ice soon forms on the inside.

Similar principles apply to footgear. The leather service shoe with overshoes or the shoepac (a rubber-leather boot) are excellent for near-freezing temperatures. For temperatures below 20° F the leather or rubber boot is not satisfactory because the moisture of perspiration freezes on the inside. Boots must be able to absorb moisture just as outer clothing does. Therefore, for temperatures from 20° to —40° F an arctic felt boot is worn. Felt absorbs some moisture and prevents freezing. The boot is said to "breathe." For temperatures below —40° F the mukluk is worn. The mukluk is a boot made of cotton duck with a nonfreezing rubber sole. Unfortunately, the acrtic felt and mukluk cannot be worn at near freezing temperatures because the feet get wet. If great variations in temperature are expected in a short period, some provision must be made to furnish a waterproof covering for the extreme cold weather boot.

The proper fit of footgear is as important as the characteristics of the material. When fitting footgear the proper sock combination for the particular boot is worn. If the boot is found to be tight and a replacement is not available, one or two pairs of socks are removed. Tight footgear impairs circulation and invites frostbite.

In extreme cold existing buildings will be used when available; in any case some form of temporary shelter is highly desirable. A mobile military force finds tents the easiest shelter to transport. Large tents have been found

to be warmer and more livable than small tents. For example, the two-man mountain tent is not a satisfactory shelter because two soldiers and their gear fill the tent beyond its capacity. Tents, large and small, require steel tent pegs to withstand driving into ice, snow, and frozen earth. Cold-weather tents require an inner lining, for unless

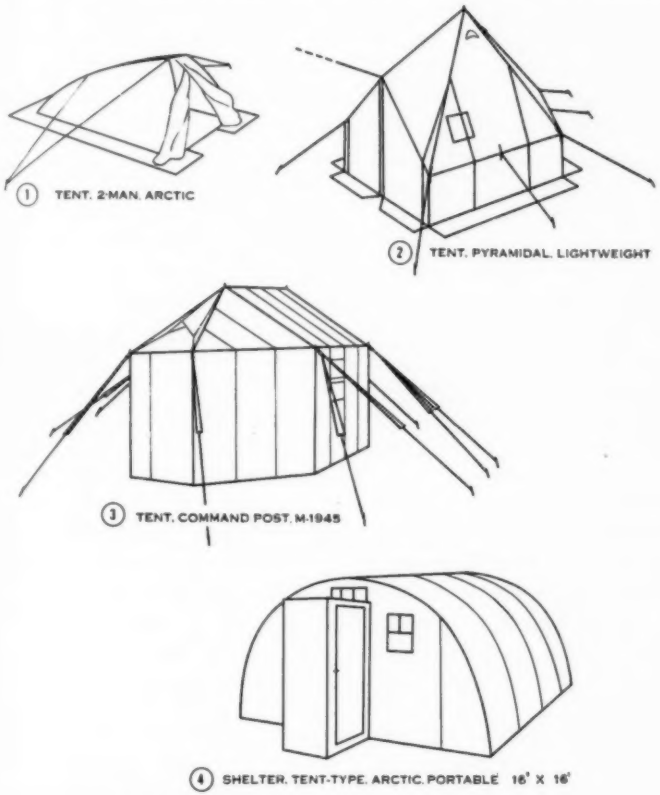


Figure 2. Various types of Arctic shelters.

tents are well insulated, condensation of breath on the inside of ceilings and walls forms enough ice to collapse the tent. In the frequent cyclonic winds of the Arctic tents will not stand up.

The Jamesway shelter is excellent for extreme cold. The shelter consists of a fiber glass cloth covering and portable frame. The frame and covering are transported in sections in boxes. When the shelter is set up the intact boxes are used as the floor. This type shelter has been modified and improved upon, but is much too heavy for frequently moving troops. The small size shelter (16′ x 32′) weighs over 2,800 pounds, and the large shelter (24′ x 48′) weighs over 8,000 pounds. However, it is an excellent shelter for semipermanent camps and rear medical units, such as a semimobile evacuation hospital. (See Figure 2.)

The wannigan is a shelter which has been used by the sour-doughs of Alaska for years. It is nothing more than a wood or sheet metal shack on skids. The structure may be used as a battalion aid station, kitchen, shower room, latrine, or command post. Its size is limited only by the power available to pull it.

The foot soldier cannot carry or pull large shelters, yet he is dependent upon shelter for efficient operation in extreme cold. A satisfactory temporary shelter is no more difficult or more time-consuming to construct than a foxhole. The lean-to, snow cave, and snow trench are simple to make. Even the snowhouse or igloo is not extremely difficult. Furthermore, snow is windproof and also insulates three times as well as wood. To keep the snow from melting, it is only necessary to place a layer of insulating material between the body and the snow. (See Figure 3.)

In any climate personal hygiene is a virtue which is difficult to establish in many people, and cold is not conducive to washing. Nevertheless, personal hygiene is as important in the Arctic as elsewhere. Lice thrive in the Arctic as well as in a temperate climate, and they are just as capable of transmitting Typhus Fever. Furthermore, dirty skin and dirty clothes are cold. Dirty, matted clothing forms a good conductor, and is cold because the insulating property is lost .

The military forces frown on beards for Arctic wear. The man is clean shaven if only for the purpose of detecting and thawing a frostbitten spot on the face. In addition,

shaving insures that the man washes at least his face. With even a very small amount of water available, cleanliness of the entire body is possible. If nothing else, the body may be rubbed with a dry cloth.

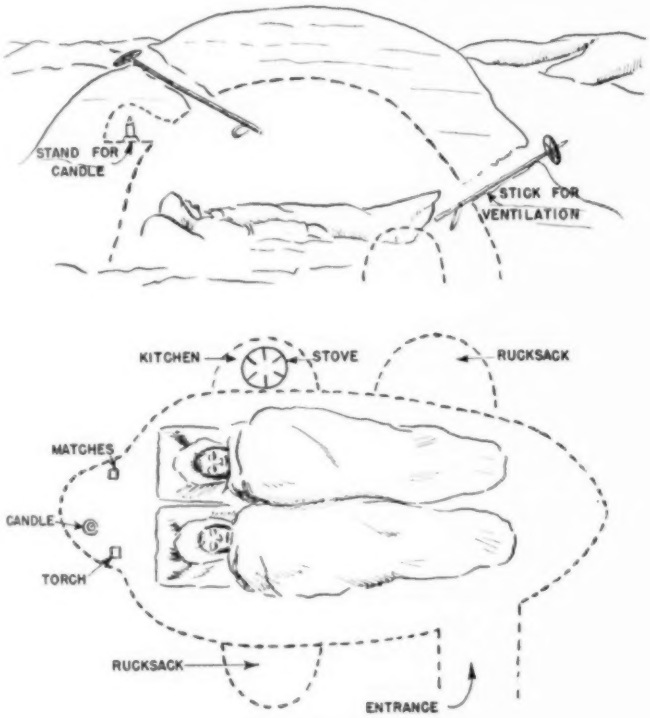


Figure 3. Two-man type snowcave.

Much of our knowledge of living, working, and fighting in snow and cold is based on the experience of explorers and relatively small groups of men. Small groups do not have the problems of sanitation which two or three thousand men or more will have. Our task forces operate from a base; field exercises last a few days; and the party returns to a permanent camp. For short periods small groups are able to use straddle trenches and garbage pits in the

snow. An infantry regiment or division actually in the field will find sanitation and water supply a much different problem.

The natives of the Arctic have failed to find a satisfactory answer to the problem of waste disposal. For example, the individual inhabitants of Russian Arctic villages are responsible for the disposal of their wastes. Waste water is merely thrown into the street. Cesspools and soakage pits are used, but become intolerable in the summer because of the water-logged ground. The lavatories of some Russian houses are located on the second floor, and from the latrine seat to the underlying deep pit is a drop of 15 to 20 feet; in the winter a stalagmite 15 to 20 feet in height may be found in these latrines. Fortunately, Russian sanitary standards are not even remotely related to American military standards.

Waste disposal in the Arctic is difficult because of the nature of the surface. In the winter the ground is frozen and covered with snow or ice, and since freezing does not destroy waste or kill germs, depositing wastes in snow latrines only makes widespread contamination possible when the snow melts. Wind causes drifting and will uncover and fragmentize the contents of snow latrines. Admiral Byrd discovered that snow-pit latrines on the windward side of camp contaminated not only the camp but the accessible snow used for drinking purposes. The construction of deep pit latrines in frozen ground requires blasting rather than digging.

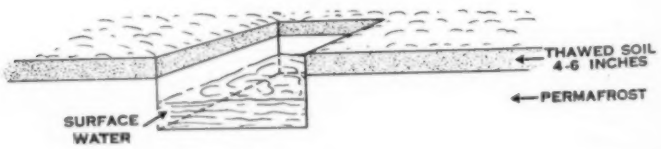


Figure 4. Deep pit latrine dug in permafrost (summer).

Much of the earth in the Arctic is permanently frozen. The permafrost may extend for hundreds of feet under the surface. In the summer, due to the long period of daylight,

the sun shines long enough to thaw out the upper 4 to 6 inches of earth. However, the deeper earth remains permanently frozen. Such a condition will not allow water to seep, and the land becomes a shallow swamp. Deep pits dug in such earth soon collect surface water and float any waste in the pit. (See Figure 4.)

Obviously, the ideal method of waste disposal in the Arctic is incineration. In semi-permanent camps pail latrines are used, and disposal by burning is a simple matter. Garbage is quickly and easily burned. Latrines that are heated are important in extreme cold; otherwise, troops will fail to use them. Any type of shelter is satisfactory—heated tent, lean-to, wannigan, or truck. (See Figure 5.)

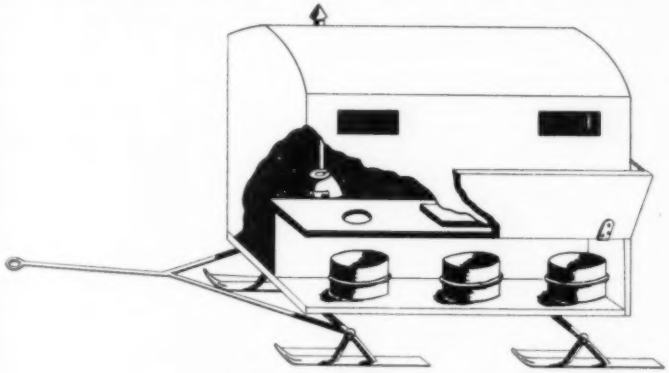


Figure 5. Wannigan modified as a pail-type latrine.

In the field the collection and incineration of waste may be difficult. Individual disposal bags have been tried. The bags are waterproofed paper so that they will retain the waste and burn. On the march or in temporary positions the bags are collected after use and burned. If the tactical situation does not permit open flames, the bags may be left in the field and collected and destroyed at a later date. Regardless of the final solution, some method of human waste disposal must be developed to provide for conditions of snow and frozen, swampy ground. A regiment or division cannot be allowed to indiscriminately contaminate areas

through which it is moving. In the absence of permafrost the usual methods of waste disposal are used.

Ordinarily, the procurement of water would not be expected to be a problem in the presence of snow and ice. Actually, the process of melting ice and snow for water is expensive and time-consuming. The best source of water is a river, lake, or stream. A hole is cut in the ice and the water pumped out, and as long as the water continues to be pumped, the hole will not freeze over. For units in the field the Corps of Engineers has proposed a heated, insulated, track-mounted 250-gallon water purification unit for each line company. With this equipment water may be secured from a river or lake, and transported in the liquid state to the company area. When a suitable source is not convenient, then ice and snow may be melted in the tank.

Regardless of the source of water in the Arctic, all water must be sterilized. Disease germs are not killed by freezing. Just as much care must be taken with drinking water in the Arctic as elsewhere. Mess sanitation is just as important in the Arctic. Diarrhea may occur in extreme cold as easily as elsewhere, the only difference being that it is more inconvenient.

The early explorers of the Arctic were constantly being driven back, not by the cold but by scurvy. Fresh vegetables were necessary in order to prevent this disease. As late as 1848 an entire English Arctic expedition of 300 men was wiped out by scurvy. Modern explorers have avoided this disease by living off the land, Eskimo fashion. They eat raw meat and fat, which contains adequate vitamins. A military force is not able to live off the Arctic effectively because soon the entire force would be engaged in hunting and fishing, and the primary mission would be neglected. Probably deep-frozen, canned or dehydrated foods will make up the bulk of the diet. Such a diet introduces the threat of deficiency diseases, and requires a vitamin supplement.

The veteran learns considerable medicine in the course of his duties in various climates. There are a few medical conditions the average soldier must be familiar with. Frostbite is the most common of cold weather injuries, and

although it is not possible to prevent frostbite completely, it is, like trenchfoot, possible to prevent overwhelming numbers of casualties and the serious consequences. Frostbite which does occur need not be more severe than mild sunburn. Prevention of frostbite and immediate attention to the first indications of frostbite is the solution to the loss of manpower from this injury.

Figure 6. First aid for frost bite of the face—gradual warming with barehand.

The face is most frequently affected by frostbite. The man must constantly test his face by feeling it or making faces. When a frozen spot is discovered it must be thawed immediately. The method is simple. A hand and arm pulled out of the sleeve inside the parka. The bare hand is run up through the collar to the face and held on the spot until thawed. Frostbite of the hand and wrist is handled in a

similar manner except that the hand and wrist are held under the opposite armpit. (See Figure 6.)

Snow is never rubbed on a frozen spot. Rubbing frostbitten skin only serves to inflict more damage. First aid for frostbite consists of gradual warming of the area with body heat. The "grandmother remedies" for frostbite, such as rubbing with snow or fur and soaking in kerosene or hot water, must be avoided.

When considering the Arctic the problems of cold and wet weather go hand-in-hand for two reasons: first, there is always a thaw (it has been known to rain for three weeks of the year at the North Pole) and second, permafrost turns the land into a shallow swamp. Therefore a discussion of injuries to the feet in the Arctic must include both frostbite and trenchfoot. Both injuries are closely related. In frostbite heat is removed by radiation, and in trenchfoot heat is lost by the conduction of water. Constriction of the feet and legs, wet shoes, socks, and insoles, and lack of exercise all contribute to the development of trenchfoot and frostbite. The prevention of trenchfoot and frostbite of the feet is similar and may be summed up in three rules: avoid constriction of the feet and legs, keep the feet dry, and exercise and massage the feet. (See Figure 7.)

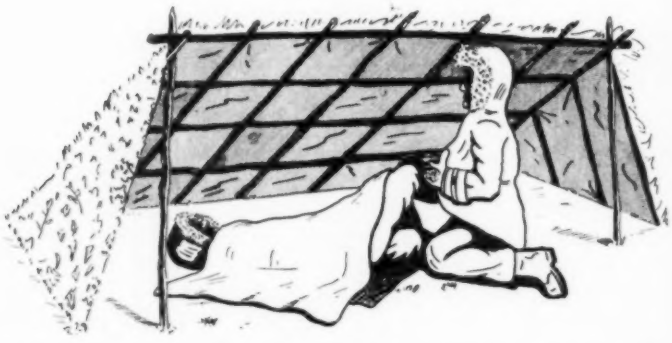


Figure 7. First aid for frost bite of feet—gradual warming with body heat.

Constriction of the feet and legs is avoided by properly fitting footgear, including socks, and loose leggings or boot tops. Feet are kept dry by changing into dry socks. Wet socks may sometimes be dried by the expedient of placing them inside the clothing, but a much more efficient method is to supply the front-line soldier with dry, clean socks with the daily ration. Drying-tents or shelters are established in a reserve area and a rotation policy established. Trenchfoot and frostbite of the feet do not occur on the march, but inactivity contributes largely to the development of these injuries. Continuous massage and exercise of the feet and legs even in small cramped positions offsets the effect of forced inactivity.

In the Arctic gasoline stoves and engines are used almost exclusively for heat and power; coal from Arctic deposits is a possible source. Unfortunately the use of gasoline may involve the generation of excessive carbon monoxide. This colorless, odorless gas has spelled the end for many Arctic explorers. A continuous check of heaters, stoves, and mufflers is necessary, and ventilation of shelters must be maintained the weather notwithstanding. First aid for carbon monoxide poisoning consists of removing the casualty from the source of the gas and giving artificial respiration.

Reflection of the sun from snow surfaces may cause snow-blindness in unprotected eyes. The eyes become red, inflamed, and very sensitive to light. Snowblindness is not permanent, but it is incapacitating for at least one week. Prevention is extremely simple; wear the issue sun glasses.

Deep, rapid breathing due to strenuous exertion, in temperatures below $-30°$ F may result in frosting of the lungs. Frostbite of the lung is avoided by placing the tongue against the roof of the mouth when mouth-breathing is necessary. The air is slowed and warmed before it reaches the lung.

Any child who has lived north of the Mason-Dixon line soon learns that he must not put his tongue on the runner of a sled in the winter time. Skin will freeze to metal surfaces and will be pulled away unless the metal is

heated. Care must be exercised to avoid touching metal. For example, a cold canteen is not touched to the lips when drinking.

Undoubtedly the problems of shelter, personal hygiene, and sanitation will be solved with Arctic acclimatization and experience, as will the difficulties of evacuating and caring for the sick and wounded.

Locating the casualty is a problem; his white uniform, equipment and weapons blend almost perfectly with the snow. One solution, admittedly not superior, is to attach a colored cloth streamer to the fallen casualty. This may be done by the company aid man, the casualty himself or whoever gives the first emergency treatment. If possible, casualties should not be left unaccompanied; to leave a non-wounded man with a casualty, however, results in two men being out of action and may seriously affect the fighting strength of the unit. In general, medical troops are able to support closely enough so that the average elapsed time between injury and evacuation is brief.

Since shock is very rapid, casualties should immediately be protected from the cold. For example, at 10° F on a windless day, an exposed casualty will usually survive the cold for one hour. Casualty bags or sleeping bags are the most convenient protection in the field. In the early evacuation speed is essential. A litter-carry of 150 yards in snow 2½ to 3 feet deep is completely exhausting and slow. The work of litterbearers is speeded by many methods. Skis may be attached to a litter and the litter pulled and pushed by two men. Toboggans are used successfully. The Finns and Germans used a snowboat in World War II. A snowboat looks like a canoe, and is pushed and pulled over the snow. The weasel is easily and quickly transformed into an excellent ambulance. Evacuation by dog team is a possibility, but will undoubtedly be reserved for unique situations. (See Figure 8.)

When the casualty reaches the first medical installation, a battalion aid station, speed of evacuation becomes secondary to adequate and proper preparation for evacuation.

Warmth and further care for the casualty at these installations, although slowing the process of evacuation, actually saves lives. Front-line evacuation by heated helicopters or liaison plane may sometimes be practicable, but unless the medical officer on the ground is first able to prepare the casualty to withstand the travel, rapid evacuation may be detrimental.

Figure 8. Snowboat used for evacuation under fire.

Arctic warfare presents many problems, and among the most difficult problems are those of health, sanitation, and mental and physical efficiency of the ground soldier. How well these problems are solved will determine how long effective fighting strength will be maintained in the Arctic. There is no short cut to military sanitation or the prevention of frostbite and trenchfoot. The secret of success lies in an understanding of principles, attention to detail, and hard work.

Motorized Reconnaissance in The Infantry Division

An infantry division without reconnaissance is like a blindfolded fighter—it can't locate the enemy to hit him a solid blow

Briefly stated, reconnaissance is the process of searching for military information in the field and passing it back to the commanders in time to be of use. The commander uses all reconnaissance facilities at his disposal—air, motorized, and foot, and the tactical situation permitting, ground reconnaissance is largely by motorized elements.

Five elements in the infantry division are designed primarily to perform the motorized reconnaissance mission: The Division Reconnaissance Company, the Reconnaissance Platoon of the Heavy Tank Battalion, and the three Regimental Intelligence and Reconnaissance Platoons. In addition, any commander can organize motorized patrols for reconnaissance missions whenever he needs to do so.

Any type of reconnaissance element, whether it be a patrol or the division reconnaissance company, operates according to principles which are not hard and fast rules but which may be interpreted in the light of each situation. When these general principles are understood, deviation or adherence is a matter of common sense.

GENERAL PRINCIPLES OF RECONNAISSANCE

1. The reconnaissance force should be kept to the minimum size adequate for the mission. In this principle the word "adequate" is the key to interpretation; it implies that the force should be large enough to do the job.

2. Reconnaissance is coordinated to insure complete coverage of the entire front and to eliminate duplication of effort.

One method of coordination is to assign a route or zone of responsibility. Another method is to assign a unit an area of responsibility. In either method phase lines or check points may be designated, or contact patrols may be used to coordinate forward movement. Reconnaissance units maintain contact with other units by radio or by exchange of liaison; exchange of liaison, however, is usually not practicable between small reconnaissance units.

3. Reconnaissance is the responsibility of each commander and is a continuous process. A commander uses all facilities at his disposal; if they are inadequate he requests additional help.

4. All units maintain all-round observation; too often a reconnaissance unit runs into trouble because it concentrates on what is ahead and forgets about its flanks and rear.

5. Upon meeting resistance the reconnaissance force takes cover, posts local security, reconnoiters, then acts to accomplish its mission. Frequently the enemy will have the initial advantage because he is situated on commanding ground, and if alert, will get in the first shot. Fortunately, the first thought when being fired upon is to take cover. If the enemy misses on his first shot—and he often does—he should not be given another opportunity. The second thought should be security; the unit leader first sends out local security, followed by dismounted reconnaissance to determine the enemy's position, strength, composition, and disposition. When the unit commander knows approximately what he is up against he is in a position to decide whether to bypass the enemy or push his way through.

6. Every commander makes a personal reconnaissance. This does not mean that the commander rides in the point vehicle, but it does mean that he goes forward to make a personal reconnaissance of the terrain. He also gets first-hand information from men who are well forward and can see what is going on.

7. Reconnaissance slows down and becomes more thorough as contact with the enemy becomes probable. Initially,

reconnaissance advances as rapidly as possible, but eventually it slows down to the speed of foot patrolling. Consequently all reconnaissance units are trained in both motorized and foot reconnaissance.

8. Once contact is gained it must be maintained. Observation posts, listening posts, and aggressive patrolling are used; if the enemy attempts to break contact, all reconnaissance is aggressively intensified.

9. Continuous reconnaissance seeks information of the main body and reserves; reconnaissance units must not be diverted by enemy security and delaying detachments.

10. Reconnaissance elements report information of the enemy, the terrain, and the resources. The reconnaissance commander does not wait for higher commanders to ask for this information; he supplies it without prompting, at the earliest time. The essential information includes the location, strength, composition and disposition of the enemy, and the time he was observed. If the enemy is moving, the direction and rate of movement are also essential. Terrain information includes the location and condition of landing fields, bridges and mine fields, contaminated areas, and general information about terrain features, routes, and lines of communication. Resources include everything that is usable by our troops, such as gasoline, water, timber, and food. Information concerning resources is reported when time and opportunity permit; it is of secondary importance to information of the enemy and the terrain.

11. Information must be reported to the commander in time to be of use. Radio is the normal method of communication in a motorized reconnaissance unit; messengers or visual signals and telephone are alternate means.

12. Reconnaissance units report negative as well as positive information. Negative information often may seem unimportant, but it has its place in the overall picture; sometimes it is of prime importance. The commander wants to know where the enemy *is not* equally as much as he wants to know where he is.

The organization and combat characteristics of the five organizations designed for the motorized reconnaissance mission in the infantry division are discussed below.

DIVISION RECONNAISSANCE COMPANY

The Division Reconnaissance Company provides the division commander with a highly mobile unit, especially trained and equipped to perform both reconnaissance and security missions. It is a combat element of the division orperating directly under the division commander. The G-2 coordinates with the G-3 in recommending intelligence missions to be given to the company; information obtained by the company is disseminated by the G-2.

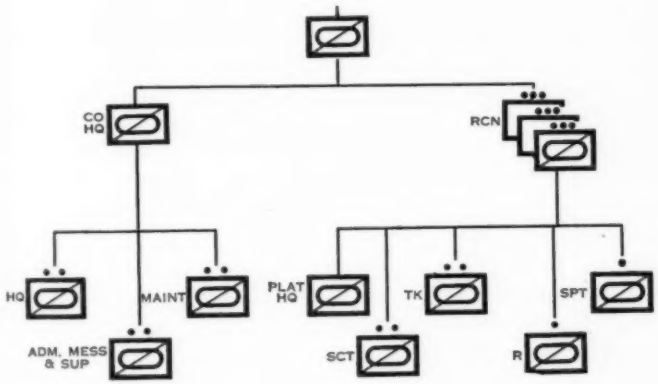


Figure 1. Organization chart, Division Reconnaissance Company.

The company contains a headquarters and three identical reconnaissance platoons. Reconnaissance companies of infantry divisions, armored divisions, and armored regiments are identical in organization except that the infantry division reconnaissance company has eight additional administrative personnel. The platoons of the division reconnaissance company are identical in organization and equipment. (See Figures 1 and 2.)

Figure 2. Vehicles, armament, and equipment of the Division Reconnaisance Company.

The combat characteristics and capabilities of the reconnaissance company can be summarized briefly: mobility, automatic weapons firepower, multiple communications, and flexibility.

Mobility is achieved by a combination of wheeled and tracked vehicles that permit rapid movement along roads and allow good cross-country movement at reduced speeds. The light armor of the tanks and the personnel carriers provides some protection against hostile fire.

The company firepower includes vehicular-mounted machine guns, tank-mounted 76-mm guns, 81-mm mortars, submachine guns, ground-mounted machine guns and rifles. By efficient use of its own supporting weapons the company is capable of independent attacks, limited combat missions beyond range of supporting artillery, and protection of its own withdrawal from action.

Radio is the primary means of communication used by the company; it uses wire, messengers, signal flags, and panel sets as auxiliary means. The different types of radio sets provide communication within the company and to its division headquarters. The company-division set has a range of 75 miles. (See Figure 3.)

As in other tactical units, flexibility is an inherent characteristic of the reconnaissance company. The company can operate as one unit on a single mission, or each of its three platoons can perform independent missions. For accomplishing special missions the company can be expanded by attaching infantry, artillery, tanks, or engineers—if the attached element is mobile.

Before committing the reconnaissance company to action a commander must recognize that it has certain limitations. Foremost among these is its limited strength and armament compared to that of a reinforced rifle company. The reconnaissance company can engage a superior force for only a brief time; it must then be reinforced or withdrawn from action. It can attack small groups of enemy when necessary to accomplish its mission, but it cannot capture strongly defended positions.

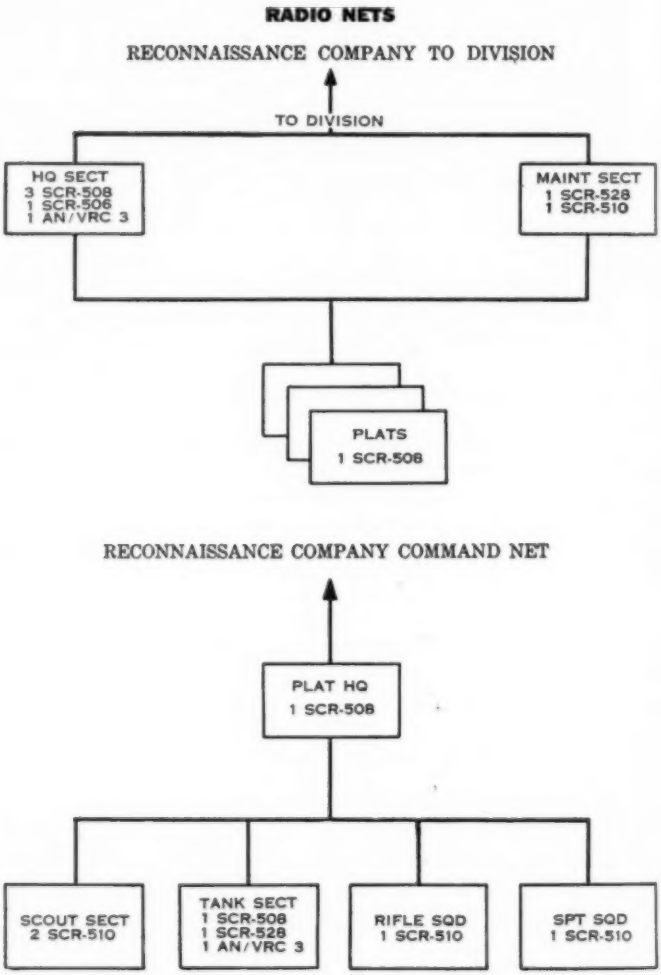


Figure 3. Communication net—Division Reconnaissance Company.

The motorization of the company tends to make it road-bound, particularly in swamps or mountains; consequently, to be effective the motorized reconnaissance mission must usually be restricted to roads and areas that can be crossed by vehicles. Resupply of fuel, lubricants, and subsistence for personnel are considerations when assigning a distant reconnaissance mission.

The range of its organic radios sometimes restricts the action of the unit, particularly in mountains. Under favorable conditions the platoon radio net has a five-mile range, the company net a 15-mile range, and the company-division radio a 75-mile range. Mountainous terrain, poor weather, or faulty maintenance greatly reduce these ranges, and if radio is not available for rapid transmission of information the value of the reconnaissance is greatly decreased.

At night motorized reconnaissance is slow and not very effective. The vehicles are noisy and the occupants of tanks and armored cars have little visibility. Usually the company is most profitably used at night on security or listening post missions.

The division reconnaissance company, as the name implies, is designed primarily for reconnaissance missions. However, its strength and organization gives it considerable offensive and defensive power, and it will frequently perform security missions. In general, it may be said that the reconnaissance company will most frequently perform reconnaissance missions when main elements of the division are not in contact with the enemy, or when the situation is fluid. It will usually perform security missions when contact with the enemy has been established and when friendly maneuver is restricted.

Based on a consideration of the capabilities and limitations of the reconnaissance company the division commander usually assigns the company one or more of the following missions:

Offensive missions:

a. Mounted reconnaissance to front and flanks.

b. Advance guard or attached to advance guard.

c. Maintain liaison and contact with another unit.

d. Maintain contact with the enemy.
e. Limited attacks.
f. Harassing missions.
g. Pursuit.
h. Seizing and holding critical features for a limited time.

Security missions: (*Offensive and defensive*)
a. Advance guard; rear or flank security.
b. Security of assembly areas.
c. Security of rear echelons.
d. Counter reconnaissance.
e. Antiairborne security.

Defensive missions:
a. Delaying action.
b. Outposting.
c. Breaking contact.

Other missions:
a. Retrograde movements.
b. Special operations such as raids or feints.
c. Reserve or part of reserve.
d. Establish listening posts.
e. Reconnaissance of roads and bridges, towns, or enemy concentrations.
f. Seize bridges or establish advance bridgeheads for river crossings.
g. Administrative missions such as providing convoy security, road guides, or traffic control personnel.

The reconnaissance company operates most efficiently as a unit, for only rarely is it divided into separate platoons and assigned more than one mission. When operating as a company, one platoon is usually held in support. After contact has been made the support is used to pass through a weak point, to attack or envelop a lightly held position bypassed by the company, to assist one of the leading platoons, to make a supplementary reconnaissance mission, to maintain liaison, or to protect the withdrawal from contact.

The frontages assigned the reconnaissance company depend on the mission, the enemy situation, the road net, the terrain, and the location of friendly units. Minimum and

maximum yardages are avoided as they lead to erroneous conclusions. When only a single road is available, the entire company may be used along its axis, but when three parallel roads are available, each platoon can reconnoiter one of the roads, especially if there are lateral connecting routes (see Figure 4).

Figure 4. Reconnaissance of three parallel roads by the Division Reconnaissance Company.

The reconnaissance platoon is the basic tactical unit of the company. The platoon leader is in the forward part of the column to maintain control and to make decisions based on first-hand information of the tactical situation.

Communication facilities in the platoon include SCR-510 radios (five mile range), visual and sound signals,

and messengers. Movement is controlled by assigning platoon objectives or phase lines where the leading elements report their progress.

The scout section normally leads the platoon in the advance. Its ¼-ton trucks operate in pairs, each pair consisting of a ¼-ton mounting a light machine gun and one equipped with a radio. The light machine gun ¼-ton normally leads each pair. One pair is responsible for the main axis and the other pair reconnoiters lateral roads.

The light tank section is the shock element of the platoon and it is well forward in the column, usually behind the scout ¼-ton and the platoon leader. When advancing in the face of enemy small-arms fire the light tank section may take the lead to overrun the enemy resistance and thus insure uninterrupted progress of the platoon. The rifle squad and the support squad normally follow the scout and tank section. Suitable formations for the platoon are shown in Figure 5.

When an enemy force threatens the success of its mission, the reconnaissance unit attacks or bypasses the resistance. The platoon is the smallest unit that initiates an attack but if enemy strength is beyond its capabilities reinforcements are requested from the company before launching the attack.

Although the reconnaissance unit may fight in furtherance of its mission, it does not engage in sustained combat. When the main body closes on the company, foot units relieve the reconnaissance unit so that it can perform other missions. When the opposing forces are engaged the company is normally used to cover an open flank, maintain liaison with other units, or act as a part of the division reserve.

RECONNAISSANCE PLATOON OF DIVISION HEAVY TANK BATTALION

The reconnaissance platoon of the division heavy tank battalion is identical to a platoon of the reconnaissance company. Its general mission is to furnish security and reconnaissance for the heavy tank battalion.

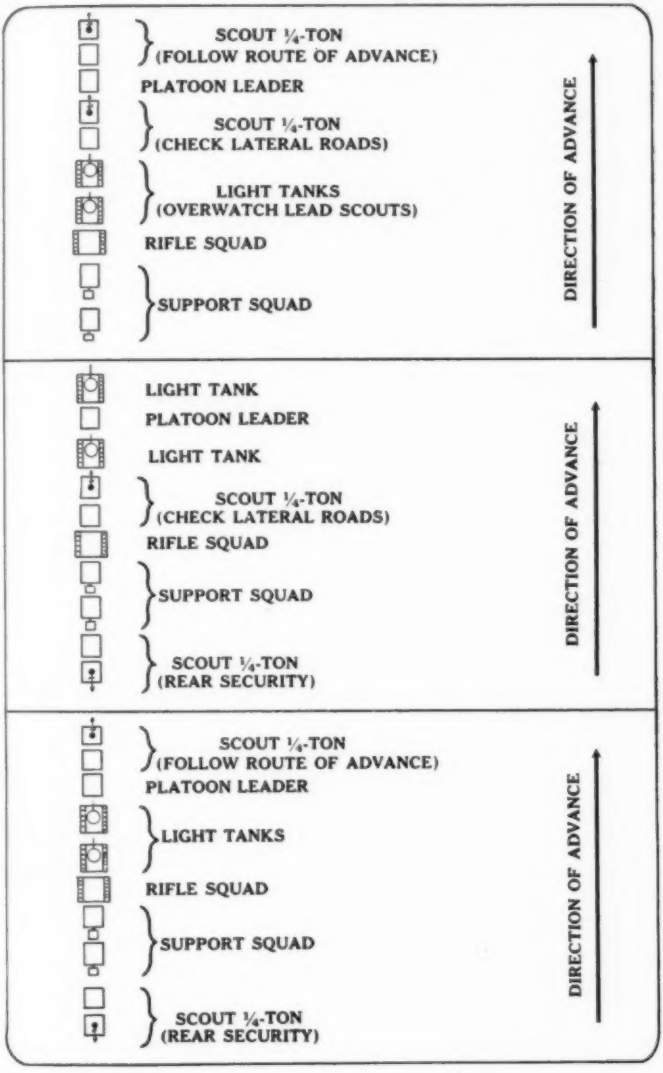


Figure 5. Suitable formations for reconnaissance platoons.

The platoon habitually operates under control of the tank battalion commander and it is normally assigned to perform one or more of the following missions: (1) provide close-in security or make a close-in reconnaissance; (2) make a route, terrain, and bivouac reconnaissance; (3) reconnoiter for assembly and attack positions for the tanks; (4) guide the tank battalion during movement; (5) escort and guide the battalion supply train; and (6) contact and maintain liaison with other units.

This platoon, like the platoons of the reconaissance company, operates as a unit on a single mission. It is not detached from the tank battalion to make reconnaissance for other units.

REGIMENTAL INTELLIGENCE AND RECONNAISSANCE PLATOON

The regimental I&R platoon performs reconnaissance missions for the infantry regiment. Like the division reconnaissance company it is designed to make either motorized or foot reconnaissance and is equipped with adequate radio communication to operate several miles from its parent unit, and it functions directly under the commander. Unlike the reconnaissance company, however, it does not have armor protection and has much less firepower. Consequently its general mission and method of employment are more restricted.

The platoon, consisting of 1 officer and 38 men, is divided into a platoon headquarters and three 8-man squads. (See Figures 6 and 7.)

The ¼-ton trucks give the platoon cross-country mobility under normal conditions and the organic radio sets provide adequate communication. The platoon is relatively weak in firepower, however, being equipped solely with M1 rifles and carbines.

The primary mission of the platoon is to perform regimental reconnaissance under the supervision of the regimental S-2. In conjunction with the reconnaissance mission, the platoon also serves as an agency for the collecting of intelligence information. The platoon is normally as-

signed one or more of the following missions: (1) obtaining information of the enemy and terrain in areas not readily accessible to other ground troops; (2) preceding the advance guard; (3) maintaining contact with the Division Reconnaissance Company or with screening forces of larger units; (4) locating and maintaining contact with enemy flanks once contact with the enemy is gained; (5) regaining lost contact with adjacent friendly units; (6) establishing and maintaining observation posts; (7) establishing road guides; and (8) acting as connecting groups while on the march.

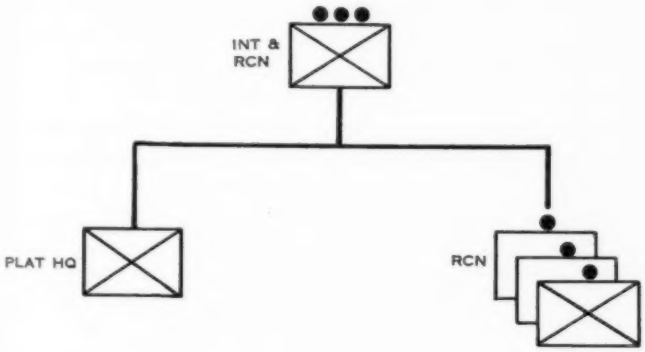


Figure 6. Organization of the Regimental Intelligence and Reconnaissance platoon.

The reconnaissance methods used by the I&R platoon are generally the same as those used by the reconnaissance company. The platoon usually initiates its reconnaissance by motor, dismounting when contact is made. The squads advance by bounds, thus providing mutual protection and fire support. The platoon is not sufficiently strong to attack organized resistance but can bypass the enemy and continue its mission.

The platoon leader maintains control by use of radio, visual signals, and messengers. On missions where the I&R

platoon precedes the main body, the regimental commander maintains control by designating objectives or phase lines where the platoon reports its progress.

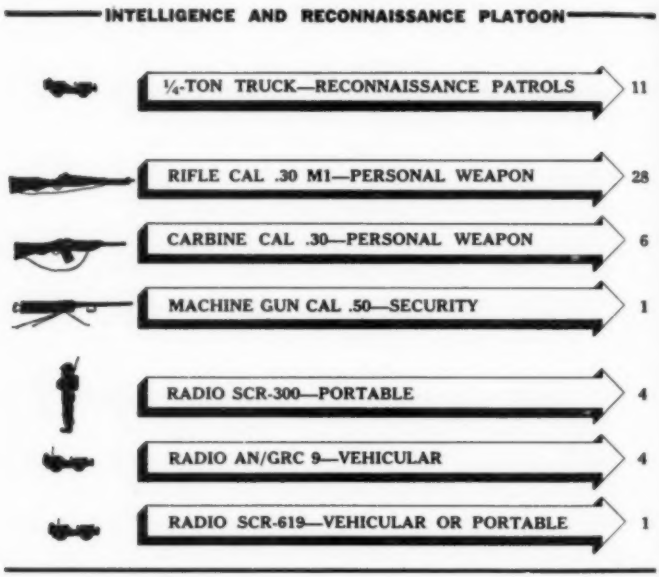


Figure 7. Equipment and armament of the I&R Platoon.

When the advance of the regiment is protected by adequate covering forces, the I&R platoon is used to maintain contact with the covering force and reconnoiter the intervening terrain, to maintain contact with adjacent units, or to reconnoiter the flanks. When the regiment is not preceded by a covering force the I&R platoon precedes or is attached to the advance guard, or is used to secure the flanks or rear.

During an attack the I&R platoon maintains contact with other units, establishes and maintains observation posts,

or reconnoiters an open flank. Under favorable terrain conditions it can be used for a flank security mission.

In a defensive situation the platoon can man outposts, reconnoiter between the general outpost and the combat outpost, set up an air warning system, or augment the security platoon at the regimental command post.

In retrograde movements the platoon can establish observation posts on successive rearward positions or can assist the units covering the withdrawal.

MOTORIZED PATROLS AND DETACHMENTS

Because organic motorized reconnaissance units may not be able to perform all required motorized reconnaissance in an area, unit commanders will frequently find it necessary to organize motorized reconnaissance patrols or detachments to perform special reconnaissance missions.

The composition, armament, and vehicles of a motorized patrol or detachment can vary, depending on the mission, from a half-squad to an infantry battalion reinforced with artillery. Regardless of its size the principles of reconnaissance apply.

Smaller motorized patrols operate in the same manner as the I&R platoon. Stronger motorized detachments, however, may be assigned one or more combat objectives and may be designed to initiate sustained combat.

When organizing a motorized detachment it is usually necessary to furnish additional transportation, supporting weapons, and radios. Frequently, specialists are attached to accomplish special missions such as bridge reconnaissance, mine clearing, and demolitions.

Motorized patrols or detachments are generally assigned one or more of the following missions: (1) making a reconnaissance to the front and flanks or rear; (2) making route reconnaissance to check bridges, road conditions, culverts, defiles, and fords; (3) clearing roadblocks; (4) maintaining contact with other units or the enemy; (5) making raids; (6) seizing important terrain features such as bridges; and (7) performing security missions for the parent unit.

SUMMARY

Motorized reconnaissance elements of the infantry division, properly used, are capable of discovering and reporting a great deal of information of the enemy and the terrain. They are not capable of sustained attack against strongly held positions and should not be diverted to this use. The advantages and limitations of motorized reconnaissance should be thoroughly understood by the employing commander to obtain the best results.

The Security Echelon in Defense

An American infantry division was successfully routing enemy forces in the vicinity of a French town. One of its battalions, well ahead of the others, was ordered to halt, assume a defensive position, and aid the adjacent battalions by fire. This battalion had performed splendidly during the day, but the troops were tired and needed rest.

Confident that his worn troops had punished the enemy enough to insure against counterattack, and reluctant to cause them additional hardship, the battalion commander relaxed his security. He sent a patrol forward through some woods about 400 yards to the battalion's front and the patrol reported that it saw no enemy. No other security precautions were enforced. During the remainder of the day and that night there was no indication of the enemy's presence.

Early the next morning devastating machine-gun and mortar fires from the woods hit the battalion position. This surprise fire was immediately followed by an enemy attack. The battalion, unprepared, became so disorganized that it had to withdraw until the supporting fire from adjacent units to the rear stopped the enemy.

During the night the enemy had quietly re-entered the woods, organized a position, planned their fires, and coordinated an attack.

This is a typical example of the result of poor security. The battalion commander had success in hand, but flushed with victory and bone tired, he disregarded his basic security measures. His action—or lack of it—resulted in 40 per cent casualties in three hours—a disastrous reversal for the troops who had performed so splendidly the previous day.

Security includes all measures taken by a command to protect itself from the enemy. Besides his forward security, a commander establishes flank security, security within the

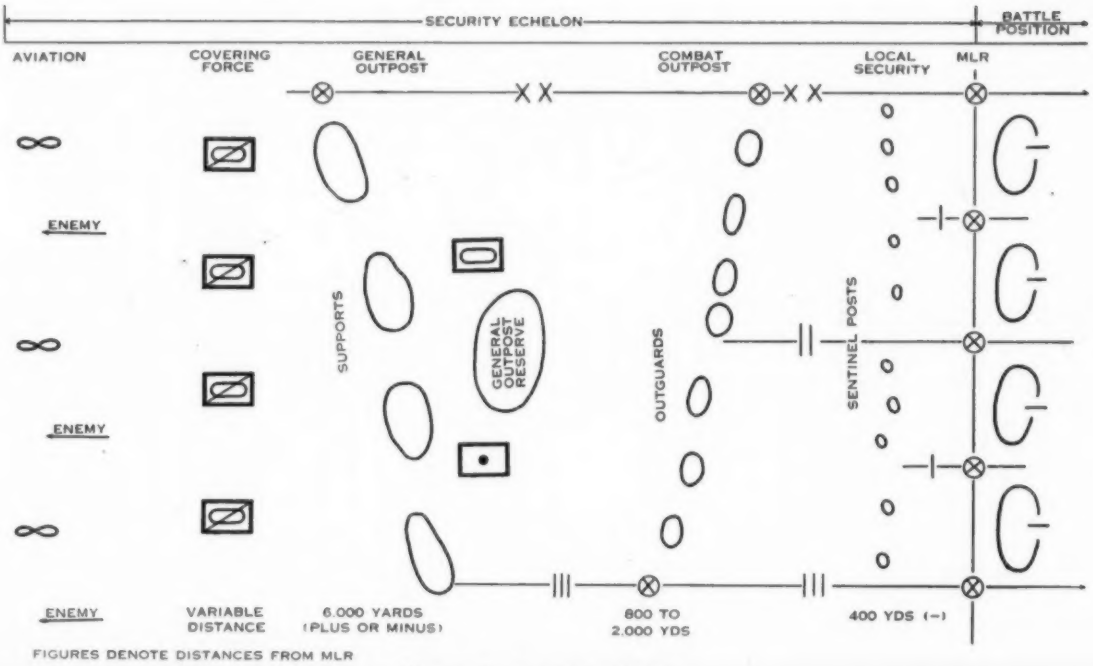


Figure 1. Security echelon.

battle position, warning systems, camouflage, and concealment. This article discusses the security established in front of a battle position organized for defense.

The primary mission of a security echelon is to protect the command against annoyance, surprise, and observation, and to maintain freedom of movement for the command by gaining the time and space required to make necessary dispositions. The security echelon usually consists of aviation, a covering force, a general outpost, a combat outpost, and local security. (See Figure 1.) As many of these security elements are employed as the situation permits.

AVIATION

The higher commander provides aviation to participate with ground forces in the security of a defensive position. Aviation's flexibility, mobility, speed, and range make it the ideal means for reconnoitering and striking the hostile ground forces, and later for assisting friendly ground security forces. Aviation participating in the security echelon includes air force combat and reconnaissance units and ground force liaison aircraft.

Combat aircraft strike hostile ammunition and supply establishments, railroads, bridges, and other installations that will delay hostile attack preparations. Other remunerative targets for combat aviation are enemy columns, troop concentrations, artillery, reserves, and mechanized forces.

Reconnaissance aviation uses both photographic and visual reconnaissance to get early and continuous information of the enemy's activities.

Ground force liaison aircraft conduct reconnaissance missions for ground force commanders to locate enemy forces and to adjust fires on ground targets.

Appropriate air and ground units exchange liaison officers to promote mutual understanding, to ensure rapid transmission of air support requests, and to disseminate speedily the results of air reconnaissance.

Requests for air missions are normally made through command channels; however, tactical air control parties (TACP) may operate with elements of the security echelon.

The TACP makes requests for air support only to those air units on air alert status assigned in close support of the particular ground unit. The TACP, from a forward observation post, contacts the supporting aircraft by radio and issues instructions to assist the aircraft locate the target.

THE COVERING FORCE

The covering force is normally the first ground element of the security echelon to contact the enemy. It is a mobile force operating as far forward of the outposts as time and the capabilities of the force permit. The units comprising this force are usually designated and controlled by the overall force commander.

The mission of the covering force is to delay the enemy as long as possible; to permit the defender to use advanced artillery observation; and to cover the defender while he lays mines, demolitions, and obstacles in front of the outposts.

The covering force is highly mobile, including armored and motorized units. It is given strong artillery, engineer, and antitank support. Organic artillery may be reinforced by artillery from the main force.

The covering force does not attempt to organize a continuous line of resistance between the enemy and the outposts. Units of the covering force occupy positions on the more likely enemy approaches—at road junctions, bridges, corridors, swamps, wooded areas, or similar features where a small force can make a larger force deploy. At each such organized locality the covering force delays the enemy as long as possible and then withdraws to another delaying position, fighting a delaying action as it withdraws. Unless required by its mission the covering force avoids close combat.

OUTPOSTS

General. An outpost is a security detachment that protects a defensive position against annoyance, surprise, and observation by hostile ground forces. Two types of outposts

may be established forward of a defensive position: a general outpost and a combat outpost. These outposts are similar in the following respects:

Mission. The mission of either a general or combat outpost is to delay and disorganize the enemy and to deceive him as to the true location of the battle position. To accomplish this mission the outpost secures the front of the battle position; provides time for the units in the battle position to prepare for combat; secures timely information of the location, strength, and intentions of the enemy; provides timely warning for the main force; and secures long-range observation.

Composition and strength. The composition and strength of an outpost varies with the enemy mobility, armament, location, and capabilities; the terrain; the size of the command to be secured; the resistance desired; and the special tasks assigned. An outpost is no stronger than is required by its mission.

Location. The outpost is located to protect key observation areas. This has two effects: it permits elements of the defending force to look deep into enemy territory, and it prevents the enemy from studying the defensive situation and directing close ground-observed fire on the battle position. The outpost line should afford the outpost garrison superior observation and good fields of fire, and take advantage of obstacles in the direction of the enemy. When practicable the outpost line of resistance does not parallel the main line of resistance.

Security. The outpost secures its own movement into position. It maintains contact with security forces operating to the front and coordinates with units to the rear.

Patrols are used for contact between elements of the outpost, for security, and for reconnaissance. They operate forward, to the flanks, and between the various outpost elements at intervals varying from 30 minutes to 2 hours, depending upon enemy activity, the terrain, weather, and visibility. They are sent out at irregular intervals, and their

routes are changed from time to time so that the enemy will not be able to anticipate their movements.

To gain contact with the enemy and to prevent surprise, patrolling in front of the line of observation is increased at night and during periods of poor visibility. Night patrolling requires systematic organization, careful preparation, and coordination with the various outpost elements.

When possible, small two or three-man patrols are used because they travel faster and farther than larger patrols and are less likely to be detected.

Deception. Plans for deceiving and disorganizing the enemy are designed to make him deploy prematurely. These plans include the construction of dummy works to simulate a highly organized position, occupation of the maximum practical front, delivery of long-range fires at rapid rates by all weapons, and selection of positions which will cause hostile deployment in the wrong directions.

Communication is maintained between the elements of the outpost, and between the outpost and other security forces, and the battle position by wire, radio, liaison aircraft, visual signals, messengers, and patrols.

Weapons. Infantry supporting weapons fire at rapid rates to create the impression that the outpost position is strongly held. Weapons which are ordinarily emplaced in pairs may be separated by wide intervals to further the illusion of strength. Alternate positions are freely used to increase deception. Machine guns fire as soon as suitable targets appear within range. Riflemen open fire at long ranges (800-1,200 yards). Automatic rifles are used to enhance the impression that the position is strongly held. In open country where the enemy has freedom of maneuver, artillery and mortars give particular attention to enemy troops maneuvering toward the flanks. Tanks and antitank weapons are sited to cover the most probable avenues of approach for enemy tanks, and they open fire when enemy tanks are within range.

Withdrawal. Unless the outpost is required to hold for a definite time, its withdrawal is started as soon as it is

apparent that hostile action may cut off outpost elements or otherwise inflict severe losses. Withdrawal plans are based upon a careful reconnaissance of available routes. The plans are explained to all outpost personnel and other units concerned. Elements of the outpost withdraw along the designated routes. Routes are used which will deceive the enemy as to the location of the battle position, or which will draw the enemy to an area which will subject him to flanking fires from the next outpost position.

The outpost withdraws on order of the commander controlling its action. If comunication to his commander is impossible, the outpost commander orders the withdrawal on his own initiative.

THE GENERAL OUTPOST

The general outpost is normally establishd on order from the division commander. The division order prescribes the initial location, the general composition, and the unit responsible for the organization of the outpost. To give the main force time to prepare its defensive position, this order may include the time and location of the last delaying position beyond which the enemy must be held.

The initial general outpost line of resistance is normally located about 6,000 yards in front of the battle position. (See Figure 1.)

Composition. The general outpost is normally organized by elements of the reserve regiment. Under certain conditions it may be furnished by the front-line regiments (usually their reserve battalions) and coordinated by the division commander. It should be strong in automatic and antitank weapons and may be reinforced with attached tanks, heavy mortars, artillery, engineers, and reconnaissance and intelligence units. Additional transportation and communication facilities may be supplied to supplement its organic equipment. The integrity of units is maintained when practicable.

Planning. The general outpost commander bases his plans on his mission and his personal reconnaissance. His plans include: security measures; the disposition and frontages

of troops on the position and on advantageous delaying positions to the rear; the organization and coordination of fires; the organization of the ground, both on the outpost line and between that line and the last delaying position; the movement to successive delaying positions; and the means to deceive and disorganize the enemy.

In planning the delaying action the general outpost commander prepares plans for both a daylight and a night withdrawal. The disposition and frontages of troops on the outpost conform in general to those in a delaying action. The mission and terrain may require that the enemy be delayed from one position. If the time the enemy must be held beyond a certain line is such that the general outpost may be required to engage in close combat to accomplish its mission, the position is organized more thoroughly than for a delaying action. Close-in protective fires may be necessary.

The outpost commander bases his withdrawal plans upon available routes to successive delaying positions. He plans the withdrawal so it neither interferes with nor is endangered by the fire of friendly troops to the rear.

Organization. The outpost line is ordinarily too extensive to be uniformly occupied. For this reason outpost troops concentrate their efforts on organizing the most important areas, covering less important areas by small detachments and patrols.

Positions are selected for organic, supporting, or attached weapons permitting them to fire as far to the front as possible. Artillery is attached to the general outpost if the outpost line cannot be effectively supported from the battle position. Artillery fires are placed upon critical areas and areas that cannot be reached by other supporting weapons. Long-range interdiction fires are planned.

The organization of the ground is as complete as time permits. Mine fields and other obstacles are used to canalize the movement of hostile tanks.

The general outpost is divided from rear to front into a reserve, supports, outguards, and sentinel posts. Detached

posts are established to secure important points outside the sectors of the supports.

The reserve is used to reinforce the troops to the front, to counterattack, or if the outpost has a delaying mission, to cover the retirement of the supports. The reserve is held at some central point from which it can readily support the troops to the front or hold positions to which they may retire. When the outpost covers a wide front or when routes of communication are poor, it is sometimes advisable to divide the reserve in two parts. The reserve usually consists of from one-fourth to two-thirds of the strength of the outpost.

The supports actually organize the outpost line of resistance. They provide their own security and furnish observation by establishing outguards and sending out patrols. The supports occupy the important points dominating or controlling the approaches into the outpost position. Each support is assigned a sector which is clearly defined by recognizable boundaries. Supports vary in strength from a platoon to a company, and are numbered consecutively from right to left.

An outguard varies in strength from a half squad to a platoon, depending on its location and the number of sentinels it is to furnish. Areas near the support may be held by small outguards, while important areas at a considerable distance forward of the outpost line of resistance are more strongly held. Outguards are numbered consecutively from right to left for each support. They are alert and ready for action at all times. During periods of reduced visibility listening posts are established in front of the general line of observation. When forced to withdraw, the outguards retire to their respective supports.

Sentinels to observe the foreground of the outpost are furnished by the outguards. The mission of these sentinels is to observe hostile activity and give advance warning of an enemy attack. Sentinels, consisting of two to four men, are generally posted not more than 400 yards from the outguard and are provided with wire or radio communica-

tion. When forced to withdraw they return to their respective outguards.

In addition to outguards, the outpost commander may detail from the reserve one or more *detached posts* to cover areas not in the general line assigned the supports. Also the main force commander may order detached posts sent from the main body to cover other important localities. The number and strength of detached posts are kept to the minimum consistent with their missions.

Patrols from the supports connect each support with its outguards; patrols from the outguards connect each outguard with its sentinel posts. (See Figure 2.)

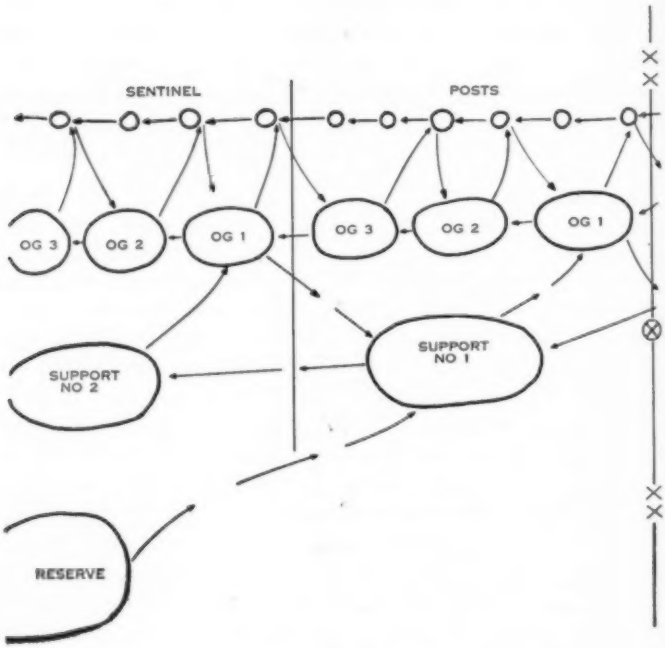


Figure 2. Patrolling between supports and outguards of a general outpost.

Patrols also cover sections of the outpost front which are difficult for the outguards to observe; such patrols are coordinated by the support commanders. The outpost commander may dispatch patrols from the supports, detached posts, or larger outguards to reconnoiter the front and flanks of the outpost position. Often this duty is performed by patrols sent from the reserve.

Distant patrolling (patrolling beyond the effective range of supporting weapons) is accomplished by outpost troops on order of the commander of the main battle position.

Conduct. The principles for the conduct of the general outpost conform to those of a delaying action. Every effort is made to inflict the maximum casualties on the enemy and to delay and disorganize his advance by timely long-range fires.

The *outguards* cover the withdrawal of advanced security elements by fire. The action of the outguards is supported by artillery and other long-range weapons of the outpost position. These weapons fire from supplementary positions to avoid disclosing the location of the outpost line of resistance. The outguards try to trick the enemy into deploying in the wrong direction.

Outguards withdraw along previously designated routes before the hostile forces can isolate them. When the outguards are furnished by the outpost reserve, they may be withdrawn to a position behind the outpost line of resistance from which they can subsequently cover the withdrawal of the supports. When outguards are detailed from the supports they rejoin their units.

The *supports* constitute the outpost line of resistance. As the outguards withdraw from their advanced positions, supporting weapons of the outpost line of resistance inflict maximum losses upon the advancing enemy. Heavy long-range fires from the outpost line of resistance can force the deployment of forces considerably stronger than those required to drive in the outguards. These fires normally force the enemy artillery into action.

Tanks may be used offensively to make surprise flank attacks, counterattack against premature pursuit, protect the flanks, and assist the infantry in breaking contact.

The conduct of the *reserve* depends upon the plans for its use and the amount of delaying action to be accomplished. If the mission requires the outpost to hold the line of resistance for a given time, the reserve is stronger than when the withdrawal is to be made before any close combat. Besides accomplishing the missions of a reserve within the battle position, it is prepared to act as a covering force for the supports in a daylight withdrawal.

The reserve secures the flanks and covers the withdrawal from the outpost line of resistance. The reserve commander prepares plans and reconnoiters routes to meet threats to either flank. He selects and organizes the covering position.

Fires of artillery and mortars cover the initial stages of the withdrawal. A few automatic weapons and small groups may be temporarily left in place, but these groups withdraw in time to avoid capture. The action upon each successive delaying position is designed to force the hostile troops to change their direction of attack and to deploy their entire force. Troops of the general outpost, after passing the combat outpost, usually withdraw to the battle position.

Having considered the time and space, the general outpost commander determines the number of successive positions to be occupied and the duration of resistance to be made on each position. These positions are selected so that they give up no more ground than is necessary. Reserves are placed where the routes of approach to the front permit them to support any of the delaying units.

As far as the situation permits, the organization of each delaying position is similar to that of the outpost line of resistance. Resistance may vary from a delay by long-range fires to an outright defensive engagement.

THE COMBAT OUTPOST

The regimental commander establishes a combat outpost. His defense order normally includes instructions on the general trace, strength, and units designated to organize

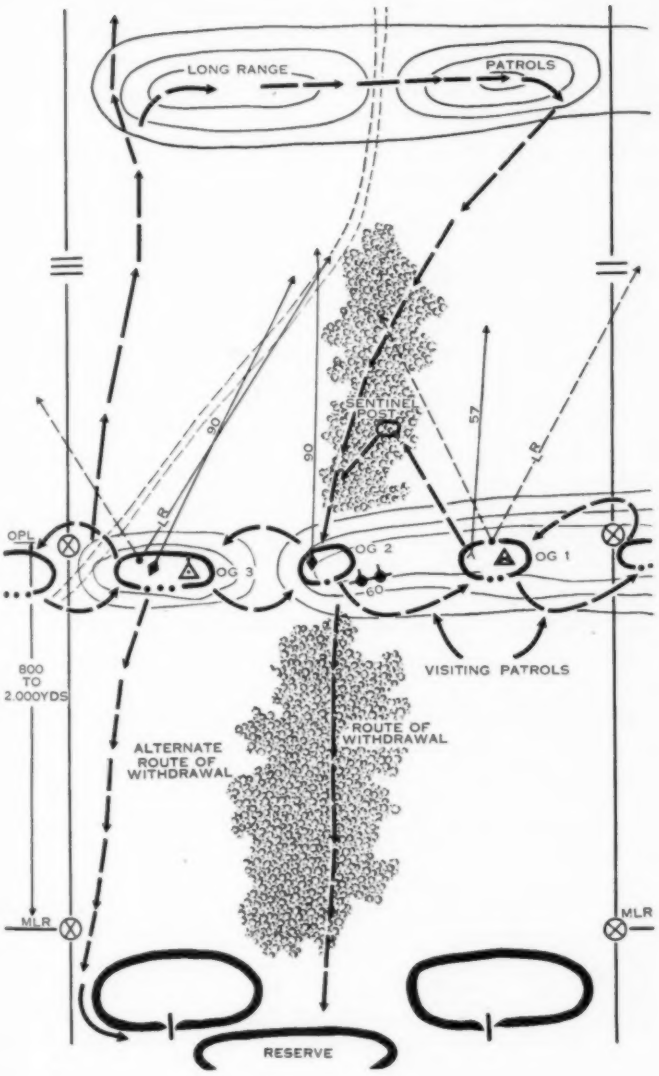


Figure 3. Combat outpost.

the outpost. Personnel to man the combat outpost may be drawn from the reserve battalion or from front-line battalions. To facilitate coordination between adjacent regiments, the division commander may prescribe the general location of the combat outpost line.

The control of the combat outpost is normally retained by the regimental commander, who coordinates its actions according to his tactical plan and the developments in the situation.

The combat outpost denies the enemy close ground observation on the battle position. To meet these requirements it is located between 800 to 2,000 yards in front of the main line of resistance. (See Figure 3.)

Composition. The regimental commander may designate the front-line battalions to organize the combat outpost in front of their respective defensive areas, or he may designate the reserve battalion to outpost the entire front of the regimental sector. When the combat outpost is established by the front-line battalions, it is controlled by or through the battalion commanders.

When practicable the troops and weapons assigned to an outpost are taken from units behind the main line of resistance. A combat outpost established by a front-line battalion is normally occupied by elements of its reserve company. The size of the combat outpost for each front-line battalion varies from a rifle platoon to a reinforced rifle company.

When the reserve battalion organizes the combat outpost across the entire regimental front, the combat outpost may vary in strength from a few rifle platoons to a reinforced battalion.

Organization. The combat outpost is usually organized in one echelon as a series of outguards. These outguards are similar in strength and function to outguards for a general outpost. A support echelon is not ordinarily employed with a combat outpost, therefore the outguards constitute the combat outpost line of resistance. They give close rifle protection to attached weapons. Outguards are numbered consecutively from right to left within the outpost position.

The location and strength of the outguards is determined by a careful ground reconnaissance. They organize their positions by covering a normal frontage—the wide gaps between outguards are covered by fire, observation, and patrols.

Weapons and troops are placed where they have long fields of fire and observation—usually on or near the topographical crest of hills or ridges.

When other ground security forces are to the front, the combat outpost may be reduced in strength after the outpost position has been prepared. If the strength is reduced, enough men remain to patrol and observe the area in front of the position. The combat outpost is fully garrisoned when security forces to the front are withdrawn.

Security. Like the general outpost, the combat outpost provides its own security. Sentinels and patrols are used to the front, flanks and rear, and close-in visiting patrols, operating from right to left between the outguards, provide local security and maintain contact between elements of the outpost.

The combat outpost's patrol responsibility extends forward to the general outpost unless otherwise ordered by the regimental commander. When the general outpost withdraws or when there is no general outpost, patrols from the combat outpost maintain contact with the enemy. During periods of reduced visibility the combat outpost's strength may be increased to permit more patrolling.

The regimental I&R platoon normally operates between the combat outpost and the general outpost. The platoon's patrols are coordinated with the outpost commanders concerned. When the general outpost is withdrawn a squad or more of the I&R platoon may be attached to the combat outpost.

Weapons. Weapons emplaced on the main line of resistance are not usually attached to a combat outpost provided by a front-line battalion. This restriction prevents the premature loss of weapons needed to defend the main line of resistance, and it gives the weapon crews the maximum

time to prepare their positions. The withdrawal of weapons attached to a combat outpost is started in time for them to be in their primary positions in the battle position before the hostile attack strikes the main line of resistance.

Machine guns are normally employed singly. They are assigned wide sectors with long fields of fire.

Artillery and regimental mortar support is obtained through forward observers attached to the combat outpost. To increase their effective range in front of the outpost, the regimental mortars may be moved to supplementary positions well forward in the battle position. They return to their primary positions when the outpost withdraws. Regimental mortars may be attached to the combat outpost.

81-mm mortars and 60-mm mortars with the outpost fire at long ranges—especially into defiladed areas which give the enemy covered routes of approach. The actual firing location of the 81-mm mortars supporting the combat outpost may either be within the battle position or in the immediate vicinity of the outpost.

Concentrations covering the foreground of the outpost position are planned for all high-angle weapons. Final protective fires in the form of barrages or final protective lines are not planned, as the combat outpost does not contemplate close combat with a superior force.

75-mm rifles have the primary mission of destroying, neutralizing, and delaying hostile armored vehicles.

57-mm rifles destroy grouped enemy personnel, enemy crew-served weapons, and hostile armored vehicles.

Tanks may be profitably employed with the combat outpost. They support the outpost by direct fire and cover its withdrawal. Their presence materially assists the outpost in destroying, delaying, and disorganizing hostile armored threats.

Withdrawal. When the combat outpost is close to the battle position or when the battle position has been organized, the outpost withdraws directly to positions in the battle

position. If delaying action between the combat outpost and the main line of resistance is practicable and required, positions are reconnoitered and plans for their occupation are formulated.

Routes of withdrawal afford maximum cover and concealment, and should permit weapons of the battle position to be fired on the enemy without endangering the withdrawing outpost personnel. When possible the routes are selected to deceive the enemy as to the true location of the main line of resistance.

To permit the outpost commander to control the withdrawal, the outpost withdraws along one or two routes. Adjacent, higher, and front-line units are immediately notified when the withdrawal starts, and are kept informed of its progress. They are notified when all elements of the combat outpost have cleared the outpost line of resistance and again when they have entered the battle position.

Normally the least engaged units are withdrawn first. The first units withdrawn may, by establishing a delaying position, assist other units in breaking contact. Less engaged units may be used to increase the fire in front of the most engaged unit to help it to break contact.

Conduct. Patrols, security elements, and observers seek early contact with the enemy in order to adjust long-range supporting fires on remunerative targets and to supply essential information to the battle position. The next higher commander is informed of the first approach of hostile forces and is kept advised of the situation.

As the enemy approaches the combat outpost, outpost weapons open fire at long ranges, inflict maximum casualties and confuse the enemy. As he advances, the enemy meets continuous and increasing fire. The combat outpost resists until the enemy forces its withdrawal.

When the outpost prepares to withdraw, all available supporting weapons in the battle position fire immediately in front of the outpost to help it break contact. After the outpost troops withdraw, these supporting fires may be placed on the vacated positions.

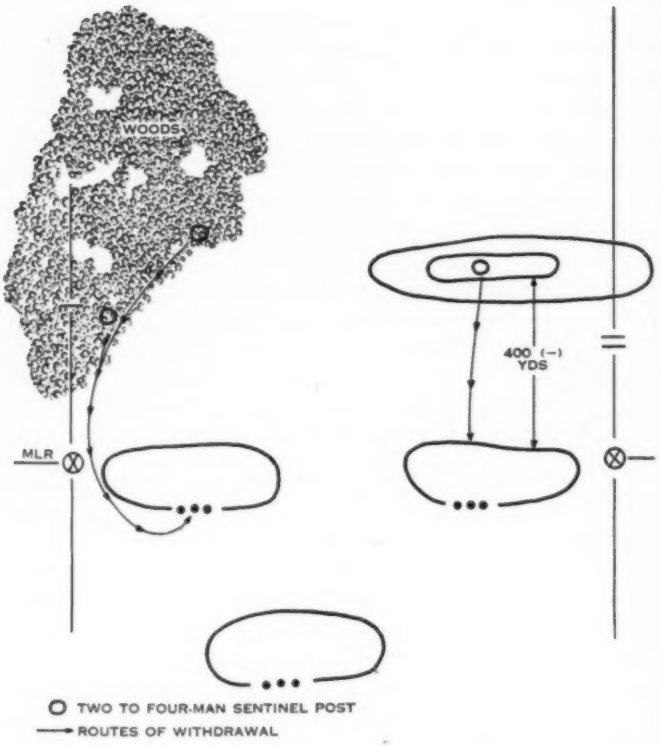


Figure 4. Local security.

Before the general withdrawal, heavy supporting weapons, heavy equipment, and wounded personnel are first evacuated.

LOCAL SECURITY

The fifth and final element of the security echelon forward of the battle position is local security. The establishment of combat or general outposts by higher commanders does not relieve the front-line company of the responsibility for furnishing its own close-in protection. (See Figure 4.)

Company sentinel posts are placed on the nearest terrain feature affording observation of each company's front. They are generally established not more than 400 yards from the main line of resistance. The company commander may direct each front-line platoon to furnish local security to its front or he may assign the security mission to the support platoon.

Sentinel posts normally consist of two to four men. During daylight they observe the foreground and warn of hostile approach. The planned withdrawal routes of the outposts are included in the areas of surveillance of the sentinel posts. As the enemy approaches, local security elements give warning, direct supporting fires on the enemy, and withdraw to the battle position. At night, additional listening posts and patrols are established on the likely avenues of enemy approach.

SUMMARY

Over a long period all combat units probably execute as many security missions as they do actual fighting missions, as battle effectiveness depends on this security, its organization and supervision.

Often the reverses suffered by a particular unit are attributed to "a surprise attack by the enemy"; in truth, many of these reports are an indirect admission that the unit was caught napping. When all personnel know the importance of security and apply the proper security during all phases of combat, there can be little opportunity for a complete surprise attack by the enemy.

Intelligence Planning for an Amphibious Operation

Returning to his headquarters from the Division Commander's conference, the regimental commander called for Major Wright, his new S-2.

"Wright, in about three months this regiment will take part in an amphibious operation. Division will issue the initial directive tomorrow; it will include the mission, the major participating units, and all available intelligence. I don't know at this time how complete this intelligence will be, but I do know from experience that accurate intelligence is essential for an amphibious operation. This is where you come in; as S-2 you are in charge of the intelligence planning in this regiment. I'll want a daily briefing but don't lose sight of the fact that there are other commanders in this regiment who'll want the same thing. Keep us satisfied. If you run into difficulties, let me know and we'll see what can be done. Initially division will undoubtedly be our main source of information and intelligence. One of your biggest jobs will be to select the material we need from what division sends us, arrange it properly, and see that it is disseminated. The regimental executive will give you the details of this morning's conference. . . . By the way, Wright, I suggest you see Colonel Beachwater down at 3d Battalion; he's made three landings —one as a regimental S-2—and can give you some practical hints. . . . "

* * * * *

"Sure, I've got a minute; got an hour, for that matter. Come in, Wright, and sit down; you look worried." Lieutenant Colonel Beachwater was in an off-duty mood; he produced a box of cigars, waved to an empty chair, and Wright relaxed with a sigh.

"Well, sir, I'm not worried exactly, but this amphibious deal is new to me, that is, the intelligence angle, and the Colonel told me you have had considerable—"

"This will be my fourth amphibious operation," Colonel Beachwater said. "You might say I'm a hoary veteran of these things by now. One thing I can say for sure: methodical, accurate intelligence planning is a must; without it, you're like a blind man in the woods—lost. . . . What's your idea of the primary purpose of intelligence, Wright?"

"To reduce the uncertainties concerning the enemy, the terrain and the weather," said Wright, a recent graduate of The Infantry School.

"Right. And by doing that we—"

"—enable the regimental commander to make better decisions; decisions that make it possible to get the job done quickly and with the fewest casualties."

"Okay as far as you go. But don't perch on the regimental level all the time. There are other commanders in this outfit—me, for instance, and platoon leaders—who want all the dope we can get. Shove it at us."

The Colonel lit his pipe and continued: "During the next few weeks you'll go through every phase in the production of intelligence for this operation. . . . Wait a minute; I've got some notes I took at the Amphibious School . . . where in blazes did I . . . ah, here they are. . . Let's take it step by step. First, the enemy; we want to know everything possible about him: the composition of his forces in the objective area, not only his ground forces but his naval and air elements as well; we want the identification of his units, their strength, equipment, location—not going too fast, am I?—organization, disposition, and mobility; we want their history, possibly something on the personalities of their commanders, and certainly the location, nature, and extent of their defenses on the beaches and immediately inland."

Wright's busy pencil stopped, and Beachwater went on: "Talking about defenses immediately inland reminds me of an experience I had on Leyte. Our battalion—I was

a major then—hit the beach with hardly a shot fired at us, and we pushed rapidly inland. About 500 yards inland we hit a minefield which someone hadn't reported. This slowed us up a bit and the Jap artillery threw everything but the kitchen sink at us. We had some pointless casualties, but the point I'm trying to make is this: S-2 should have learned about that minefield and passed the dope on to the assault commanders. I found out later that he had some excellent aerial reconnaissance photos of that particular area which disclosed something suspiciously like a minefield. Did you know that aerial photos taken under good conditions and interpreted by experts can reveal even the texture of the sand. . . . ?"

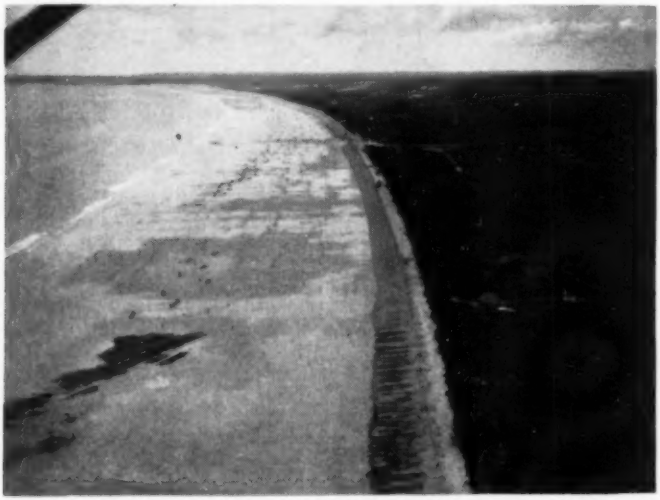


Figure 1. Aerial reconnaissance photograph showing minefield on the beach.

"Yes, I know that," said Wright. "We had a good course on the subject at the School. . . . By the way," he added with interest, "what happened to that S-2?"

"What happens to anyone who makes a serious mistake in combat? But let's get back to the subject. Some three months from now we'll probably be in some sort of landing craft. What problems does that bring to mind?"

"Let's see—we've got to know about the surf and swell conditions, the tides and currents, depths of the water, water temperature and—uh—the nature of the bottom and the location of any reefs, rocks, or shoals. . . ."

"Right down the line," said Beachwater approvingly. "But you've left out an important something—the underwater or beach obstacles that the enemy may have placed to interfere with our landing."

"Such as mines and wire?"

"Yes, and cables and spikes. This sort of stuff can set you up like a sitting duck. Damned uncomfortable experience."

Wright smoked reflectively for a moment, then asked: "What about the beaches themselves, Colonel? I'm not quite clear on this particular phase of the operation."

"Well, we can't afford to wait until the first wave dashes across the sand to find out what type of beach we've hit. We must know in advance whether the sand is loose or hard-packed. When we know this we can determine whether it will hold wheeled vehicles or only tracked vehicles. If we know in advance that the beach will not hold cargo trucks, there are several things the CO can do to remedy the situation. He can ask division for additional engineers with matting equipment to make beach roads and beach exits. He can probably arrange to take the first and second waves ashore and across the beach in amphibious tanks—LVTAs. He can arrange to have part of the ammunition and other critical supplies pallet-loaded (see Figure 2 so that they can be towed across the beach behind tractors. . . . Incidentally, here's a photograph of loaded pallets containing ammunition being towed from an LCM by a bulldozer on Saipan. . . . "

"Colonel, I take it you think these pallets are pretty important."

"Mighty handy to have around. Of course, it's an S-4 problem, but that's where your staff functioning comes in. Got to let him know they might be needed."

"Sir, if we find that the beach is hard and firm, then the CO can plan to establish the supply dumps further

inland and get some of the weapon-carriers ashore early. Is that right?"

"That's right, Major; and a good, hard beach may also affect the location of the heavy mortar and tank companies in the landing plan."

Figure 2. Loaded pallets containing ammunition being towed from an LCM by a bulldozer.

Wright leaned forward in his chair, thoroughly absorbed now in the veteran's ready flow of knowledge. "Colonel, I guess the best way of getting advance information on beach conditions is by questioning civilians and secret reconnaissance, such as landing parties from submarines at night."

"That's one way of getting it—and it's good stuff. But remember what I told you about aerial photos; under good conditions, these photos will show you the beach right down to the individual grain of sand."

Wright looked at his watch. "Sir, I've still got a slew of questions, that is, if—"

"Fire away," said Beachwater, relighting his pipe.

"Well, after we're ashore—what then?"

"Plenty. We're interested in the configuration of the shoreline, the general relief of the area, critical terrain features, observation and fields of fire, cover and concealment, obstacles, both natural and artificial, avenues of approach, drop zones for airborne troops, emergency landing sites for aircraft, suitable areas for command posts . . . . Yes, and landmarks for identification of the landing beaches from the sea; and supply areas and vehicles parks. . . . "

Wright got it all down in his notebook, and then asked: "What about the weather, Colonel? I read where the final decision as to the exact time of the Normandy invasion was based almost entirely upon consideration of the weather; that is, the temperatures, the pattern of precipitation, the wind, visibility, frequency and nature of storms, and the general flying conditions for air support."

"It sure was, Wright. And you can count on it that our own little expedition about three months from now will be fully weather conscious."

"Then," said Wright, "the weather out of the way, I guess we've got to know about the port and storage facilities, and whether we'll be able to unload at a pier or have to unload the cargo ships by using landing craft and DUKWs."

"Major, you're going to be all right—you're a step ahead of me on that one. Let's hear some more."

"Well, Colonel, there will usually be some people near the objective area other than the active enemy. What can we expect from them? Will they be friendly or hostile and will we have to feed them? We want to know whether they are healthy or whether they'll be a health menace to our troops and a burden to our medical facilities."

"Those are important considerations—you're right on the beam. . . . Talking about the health angle reminds me of a landing along the New Guinea coast in 1944—I was a captain then. The landing was only slightly opposed and the Japs fled to the hills, but damned if the regiment didn't suffer over 400 casualties in the first ten days. One

battalion set up in a kunai grass area because it was high and comparatively dry—unfortunately it was infested with scrub typhus. The Japs couldn't stop the operation but the lice almost did."

"That's an interesting point to think about. But right now, Colonel, I've got a question that's been puzzling me ever since we started. It's this: Seems to me that there are a number of items on the list which will be the basis for decisions beyond the control of the regimental commander. After all, the operation directives will undoubtedly tell us exactly when and where we will land, and no matter how much we know—or don't know—about the objective area we will be stuck with it, like it or not."

"You are one hundred per cent right about that, Wright. But—and don't forget this—the more every man in this regiment knows about the beach, together with all the other things we mentioned, the better we can operate. You see, it's important that we know just what intelligence we will need. If we know that, and division doesn't give it to us, then we can ask. Incidentally, all the pushing in this Army isn't from the top down; don't be shy about requesting the information the troops will need."

"Why, that's just what the Old Man told me this morning. . . . "

"You're set on that point—the Colonel is a master of the art. If it is for the good of his regiment, he'll talk the stars clear off the General's collar. Do it painlessly, too. . . ."

"Then as I see it, sir, everyone must have all the available intelligence, and in addition the S-2 has got to know *what* is needed so that it will be available."

"Well stated, Wright—that's it in a nutshell. . . . Our next worry is, how are we going to get all this dope? When we are in combat we have quite a few collecting agencies in the regiment, but we can't use these agencies now. Our objective may be five thousand miles from here, with nothing between but water. So we've got to depend on division; there just isn't any other way we can get everything we need by ourselves. Now, although division will deliver intelligence to us, most of it, at this time, will

be produced by even higher headquarters. Because this will be a joint operation, all facilities of the Army, Navy, and the Air Force will be used to collect information. These high-level people have access to a lot of sources that we are not even aware of, and you can be sure that they will use them all and develop new ones if they can. . . . As a matter of fact, there *is* one way in which regimental intelligence can collect its own information prior to the actual landing; however, this method is only used under exceptionally favorable circumstances. For example, many days before the assault troops landed on Luzon, several regimental S-2s were put ashore by submarine and contacted the guerrilla forces. They were able to contact American commanders of guerrilla forces, and they sent back a great deal of information to their divisions. On D-day, these S-2s, well supplied with information, met their regiments on the beaches. . . . More frequently, though, intelligence will be in the form of joint intelligence studies, special maps and photographs, and order-of-battle reports. Actually we don't need to concern ourselves much with the sources of information or the agencies used to obtain it, for between the Army, the Navy, and the Air Force, we should get about everything we ask for."

Colonel Beachwater paused, refueled his pipe, and waited while Wright completed his notes. Then: "Well, we've still got 30 minutes before mess, so let's get right down to cases. So far you've got the big picture. But what you are mainly interested in right now is getting your hands on the initial directive from division and comparing the intelligence that it contains with the list of items that we have said we will need. The questions on that list that are not answered in the division directive will comprise the intelligence requirements for the operation."

"Question, Colonel. Won't the regimental commander make the final decision about these requirements?"

"Yes; but since you are a staff officer he will certainly expect you to make some specific recommendations concerning them. When the regimental commander has approved the final list, you are then ready to plan for the

collection of information and intelligence needed to satisfy our requirements."

"Isn't that just a matter of determining what information and intelligence is needed, and who will get it, and then preparing the orders and requests to get it?"

"That's right. But don't get the idea that the initial collection plan will suffice for the entire operation; you'll be revising it almost every day. There is a form for this collection plan and it pays to use it."

"Is it possible that I could turn some of this collecting job over to regimental agencies?"

"Possible, but not probable at this time. Most of the items will go in the form of requests to division. Of course we don't tell division to do anything; we ask them. You'll get most of what you ask for, but don't think for a minute you'll get it all at once. However, when the dope does come in, see that it gets to the people who need it—the regimental commander, the staff, and other commanders in the regiment. . . . Of course, the big job of a regimental intelligence officer is always to answer the Old Man's main questions about the enemy and the terrain he is going to fight over. You can call these questions Essential Elements of Information —or as they are more commonly called—EEI. The regimental commander won't really care what you call them as long as you get the right answers. . . . Now I'll ask *you* a question, Wright—what are you going to do with the intelligence when it comes in?"

"Disseminate it," said Wright; "get it out to everyone who needs it in time for them to use it."

"Good!" said Beachwater with approval. "There are several ways you can accomplish dissemination, depending on the nature of the intelligence and how urgently it is needed. Try to get enough copies of all the various studies and reports so that you can make a complete distribution within the regiment. For security reasons, however, distribution will sometimes be restricted, in which event—"

"I'll call in the officers concerned and let them have a look at the stuff in my office."

"Personal contact is one of the best methods of dissemination, Major, but don't get chairbound. Visit the battalions and have conferences in the planning room. Also, the regimental commander will expect a briefing at least once daily to get anything hot that comes in, and you'll undoubtedly be expected to handle the intelligence briefing at his conferences. Then you'll have to prepare the intelligence annex for the operations order—all this is dissemination. . . . You'll have a lot to say about what goes in the operation order, Wright; let's hear your ideas on the subject."

"Well, sir, I looked it up in the field manual just before I came over here. The first paragraph is a summary of the enemy situation, and as a supplement to the paragraph there will be an order of battle appendix which will give enemy organizations and dispositions in detail. Also, we can refer to previously published intelligence reports so that the paragraph won't be too long. In the second paragraph will be listed the intelligence requirements—the EEI—that we want to bring to the attention of all units receiving the order. The next five paragraphs shouldn't be much of a job—the SOP should pretty well take care of it—"

"Let's hear it anyway," persisted Beachwater. "I'm a potential recipient of one of these orders and I like 'em clear and brief."

"Well, the succeeding paragraph will include any special instructions concerning the handling of prisoners, captured documents, and materiel; the distribution of maps, charts, and photos for the operation. There will be a paragraph listing the counterintelligence measures in effect for the operation, and another containing instructions to the interrogation team and other specialists who will work with us. The last paragraph will state the routine reports we want. That's about it."

"One more thing, Major. You'll have to prepare a supplement to the annex, containing a terrain analysis, tide table, sunset and sunrise tables, and a moonrise and moonset table, but you can probably extract these items from

the division order. . . . You know, Wright, this job of dissemination is one of the biggest things an S-2 has got to do. The actual briefing of the squads and platoons will almost all be done by their unit commanders, but it is up to you to furnish them the help they will need in the way of maps, charts, photos, and if possible, some models of the beach area. The final briefing, of course, takes place on the transports, which makes it possible to put out the latest and most highly classified intelligence and make final distribution of the photos and maps. There is a security angle here, too—when everyone is finally given all the details of the operation they will be so far out on the ocean that they won't be able to tell anyone about it, either deliberately or by slip of the tongue."

Major Wright tamped out his cigar and got up. "Colonel, I've got one more question—what about secrecy during the planning?"

"All planning should be done in a secret room. If the units of the division are close together, usually this room is initially set up at division headquarters so that the staffs can work together, which makes it possible to iron out most of the problems without unnecessary loss of time, and also makes it easier to maintain secrecy. Later, battalions and regiments may wish to set up their own rooms. The operation ahead of us will be given a code name, and regiment in turn will give code names to key terrain features and the initial objective. . . . Incidentally, Wright, we'll have to tighten up on censorship and any news stories that might originate here. Particularly in an amphibious operation, surprise may mean the difference between success and failure; to gain surprise we've got to keep the enemy from finding out our real plans and intentions. . . . To sum up, Wright, we can say that first, we decide what intelligence we must have; then, having arranged to get it, put it where it will do the most good. . . . "